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THIRTY-THIRD ANNUAL REPORT

OF THE

INDIANA

State Board of Agriculture.

VOLUME XXV, 1883.

INCLUDING THE PROCEEDINGS OF THE ANNUAL MEETING, 1884; MEETINGS
OF THE CATTLE BREEDERS, SWINE BREEDERS, WOOL GROWERS AND
BEE-KEEPERS, 1884, AND A DESCRIPTION OF EACH COUNTY.

TO THE GOVERNOR.

INDIANAPOLIS:

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING.

1884.

INDIANAPOLIS, March 1, 1884.

To His Excellency, ALBERT G. PORTER,

Governor of Indiana:

SIR—In compliance with the act of the General Assembly, approved February 1, 1852, we have the honor to submit herewith the annual report of the Indiana State Board of Agriculture for the year ending December 31, 1883, together with such matter as is deemed interesting and useful.

Very respectfully,

ROBERT MITCHELL, President.

ALEX. HERON, Secretary.

STATE OF INDIANA, }
EXECUTIVE DEPARTMENT. }

Received March 6, 1884, examined by the Governor, and referred to the Commissioners of Public Printing for their action thereon.

FRANK H. BLACKLEDGE,

Private Secretary.

Filed in this office March 14, 1884.

W. R. MYERS,

Secretary of State.

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INDIANA STATE BOARD OF AGRICULTURE, 1883.

(Elected by the Delegates from Agricultural Societies.)

- 1st District—ROBERT MITCHELL, Princeton, Gibson county.
 - 2d District—SAMUEL HARGROVE, Union, Pike county.
 - 3d District—B. H. HANCOCK, Fredericksburg, Washington county.
 - 4th District—W. B. SEWARD, Bloomington, Monroe county.
 - 5th District—T. W. W. SUNMAN, Spades, Ripley county.
 - 6th District—DICK JONES, Columbus, Bartholomew county.
 - 7th District—W. W. COTTERAL, New Castle, Henry county.
 - 8th District—S. W. DUNGAN, Franklin, Johnson county.
 - 9th District—H. LATOURETTE, Covington, Fountain county.
 - 10th District—JASPER N. DAVIDSON, Whitesville, Montgomery county.
 - 11th District—JOHN M. GRAHAM, Muncie, Delaware county.
 - 12th District—CHAS. B. STUART, Lafayette, Tippecanoe county.
 - 13th District—JOHN RATLIFF, Marion, Grant county.
 - 14th District—L. B. CUSTER, Logansport, Cass county.
 - 15th District—W. A. BANKS, Door Village, LaPorte county.
 - 16th District—R. M. LOCKHART, Waterloo, DeKalb County.
-

OFFICERS FOR 1883.

(Elected by the Board of Agriculture.)

ROBERT MITCHELL	President.
SAMUEL HARGROVE	Vice President.
ALEX. HERON	Secretary.
JAMES A. WILDMAN	Treasurer.
FIELDING BEELER	General Superintendent.

EXECUTIVE COMMITTEE.

ROBERT MITCHELL, President.

W. B. SEWARD,

R. M. LOCKHART,

S. W. DUNGAN,

JOHN M. GRAHAM.

BOARD OF AGRICULTURE.

A TABLE showing the Officers, Place and Receipts of each Fair held by the State Board of Agriculture.

Year.	PRESIDENT.	SECRETARY.	TREASURER.	GENERAL SUPERINTENDENT.	Place of Fair.	Premiums Paid.	Receipts of Fair.
1852.	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	W. T. Dennis	Indianapolis	.....	\$4,651 55
1853.	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	J. J. Bingham	Lafayette	.....	6,751 52
1854.	Gov. Joseph A. Wright	Wm. T. Dennis	Royal Mayhew	W. T. Dennis	Madison	.....	7,430 77
1855.	Gen. Joseph Orr	John B. Dillon	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	\$3,753 00	10,823 75
1856.	Dr. A. C. Stephenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,225 00	14,373 34
1857.	Dr. A. C. Stephenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,127 00	14,058 75
1858.	Dr. A. C. Stephenson	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr.	Indianapolis	.....	11,500 00
1859.	George D. Wagner	John B. Dillon	Thomas H. Sharp	James L. Bradley	New Albany	6,163 00	8,593 50
1860.	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	Indianapolis	3,827 00	11,902 00
1861.	D. P. Holloway	Wm. T. Dennis	H. A. Fletcher	.....	No Fair	.....	.....
1862.	James D. Williams	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	3,994 00	4,127 55
1863.	A. D. Hamrick	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	.....	9,559 36
1864.	Stearns Fisher	W. H. Loomis	Francis King	W. H. Loomis	Indianapolis	4,121 00	10,725 50
1865.	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Fort Wayne	4,078 00	11,597 52
1866.	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Indianapolis	.....	17,179 36
1867.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Terre Haute	6,331 00	17,148 05
1868.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,087 00	16,799 00
1869.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,517 00	22,345 65
1870.	J. D. Williams	Joseph Poole	Carlos Dickson	J. S. Benson	Indianapolis	7,914 00	19,155 23
1871.	J. D. Williams	Joseph Poole	Carlos Dickson	Jacob Mutz	Indianapolis	8,564 00	20,549 90
1872.	John Sutherland	Alex. Heron	Carlos Dickson	H. W. Caldwell	Indianapolis	9,619 20	23,481 35
1873.	John Sutherland	Alex. Heron	Carlos Dickson	H. W. Caldwell	Indianapolis	8,864 75	52,309 10
1874.	John Sutherland	Alex. Heron	Carlos Dickson	E. J. Howland	Indianapolis	10,754 00	45,330 48
1875.	William Crim	Alex. Heron	Carlos Dickson	E. J. Howland	Indianapolis	12,468 20	43,214 99
1876.	Hezekiah Caldwell	Alex. Heron	Carlos Dickson	J. J. Hanna	Indianapolis	6,342 70	6,342 70
1877.	Jacob Mutz	Alex. Heron	Carlos Dickson	J. W. Furnas	Indianapolis	6,337 95	14,511 00
1878.	W. R. Seward	Alex. Heron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,057 00	15,991 33
1879.	Robert Mitchell	Alex. Heron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,472 00	22,919 50
1880.	W. H. Ragan	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	6,553 00	18,809 05
1881.	R. M. Lockhart	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	6,855 50	17,874 00
1882.	H. C. Meredith	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	8,096 00	25,631 10
1883.	Robert Mitchell	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	9,581 13	26,858 43
1884.	Robert Mitchell	Alex. Heron	S. Johnson	Fielding Beeler	Indianapolis	.....	.....

A. C. Jameson filled the office of Treasurer for 1873, to the 27th of August, 1873, when he resigned, and Carlos Dickson was appointed to fill the unexpired term. H. C. Meredith died July 5th, and L. B. Custer, Vice President, came in as President for the unexpired term.

NOTE.—In consequence of the loss of papers, incident to the military occupancy of the rooms of the State Board of Agriculture, during the late war, and incomplete records preserved, the amount of premiums awarded at the several State Fairs is necessarily incomplete.

STATE INDUSTRIAL ASSOCIATIONS.

OFFICERS FOR THE YEAR 1884.

HEADQUARTERS IN THE AGRICULTURAL ROOMS, CORNER OF TENNESSEE AND MARKET STREETS.

Indiana State Board of Agriculture.—President, Hon. Robert Mitchell, Gibson county; Secretary, Alex. Heron, Indianapolis, Marion county. Organized May, 1851.

Indiana Horticultural Society.—President, Sylvester Johnson, Irvington, Marion county; Secretary, C. M. Hobbs, Bridgeport, Marion county. Organized 1842.

State Association of Short Horn Breeders.—President, Hon. E. S. Frazee, Orange, Rush county; Secretary, J. W. Robe, Greencastle, Putnam county. Organized May, 1872.

Indiana Jersey Cattle Breeders' Association.—President, Theo. P. Haughey, Indianapolis, Marion county; Secretary, T. A. Lloyd, Indianapolis. Organized January, 1883.

Indiana Dairymen's Association.—President, J. E. Thompson, Waterloo, Dekalb county; Secretary, Sylvester Johnson, Irvington, Marion county. Organized September, 1876.

Indiana Swine Breeders' Association.—President, Richard Jones, Columbus, Bartholomew county; Secretary, W. H. Morris, Indianapolis. Organized January, 1877.

Indiana Wool Growers' Association.—President, C. T. Nixon, Indianapolis, Marion county; Secretary, I. J. Farquhar, Trenton, Randolph county. Organized October, 1876.

Indiana Poultry Breeders' Association.—President, H. C. G. Bals, Indianapolis, Marion county; Secretary, D. H. Jenkins, Indianapolis, Marion county. Organized January, 1875.

Indiana Bee Keepers' Association.—President, Mrs. Irwin Robbins, Indianapolis, Marion county; Secretary, F. L. Daugherty, Indianapolis. Organized October, 1879.

Indiana Cane Growers' Association.—President, Dr. A. Furnas, Danville, Hendricks county; Secretary, W. L. Anderson, Ladoga, Montgomery county. Organized December, 1882.

Indiana Tile Makers' Association.—President, Robert Thomas, Indianapolis; Secretary, J. J. W. Billingsley, Marion county. Organized November, 1876.

Indiana Women's State Industrial Association.—President, Mrs. A. M. Noe, Indianapolis, Marion county; Secretary, Mrs. F. M. Adkinson, Indianapolis, Marion county. Organized September, 1878.

METEOROLOGICAL TABLES.

MONTHLY MEAN BAROMETER, THERMOMETER, ETC.

TABLE showing Monthly Mean Barometer, Thermometer, Relative Humidity; Maximum and Minimum Temperatures; Prevailing Direction of Wind; number of Clear, Fair and Cloudy Days; average amount of Cloudiness; number of Days on which 0.01 inches or more of Rain or Snow fell; total amount of Precipitation and number of days on which the Temperature fell below the Freezing Point at Indianapolis, Ind., for each Month of the Year, 1883, as recorded at the United States Signal Office.

1883. MONTH.	Mean Barometer. Inches.	Mean Thermometer. Degrees.	Mean Relative Hu- midity. Per cent.	Maximum Temper- ature. Degrees.	Minimum Tempera- ture. Degrees.	Prevailing Direction of Wind.	No. of Clear Days.	No. of Fair Days.	No. of Cloudy Days.	Average Cloudiness During the Month. Scale, 0-10.	No. Days on which 0.01 inch or more of Rain or Snow fell.	Total Amount of Precipitation. Inches.	No. Days on which Temperature Fell Below Freezing.
January	30.152	24.5	73.8	45.0	-11.0	W.	5	8	18	6.9	14	1.32	30
February	30.273	32.0	72.4	72.0	4.0	SW.	6	10	11	6.0	14	7.19	22
March	30.047	36.1	62.3	68.4	12.0	SW.	6	18	7	4.9	11	3.25	21
April	29.955	53.3	60.5	85.3	30.4	S.	7	13	10	5.6	15	2.73	4
May	29.930	60.9	61.7	82.8	35.0	SW. NW.	8	12	11	5.7	14	4.02	0
June	29.921	71.5	66.5	89.0	50.0	SW.	6	14	10	5.9	19	4.59	0
July	30.002	75.1	65.5	92.0	56.8	SW.	10	15	6	4.4	13	6.12	0
August.	30.040	70.4	64.2	91.0	53.0	NE.	11	15	5	4.4	11	2.48	0
September	30.033	63.2	66.1	87.0	40.4	NE.	14	12	4	3.7	10	2.72	0
October	30.080	54.8	70.5	81.0	35.0	S.	6	13	12	6.4	14	8.56	0
November	30.151	45.0	62.3	65.0	10.0	S.	9	15	6	4.5	13	6.80	11
December	30.126	34.4	68.1	62.0	9.0	S.	8	12	11	5.9	16	4.34	18
Annual Means and Totals. }	30.059	51.8	66.2	76.7	27.0	SW.	96	157	111	5.4	164	54.12	106

DAILY AND MONTHLY MEAN BAROMETER.

TABLE showing Daily and Monthly Mean Barometer at Indianapolis, Ind., for each day and month of the year 1883, as recorded at the United States Signal Office.

BAROMETER CORRECTED FOR ELEVATION TEMPERATURE AND INSTRUMENTAL ERROR.

DATE.	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1 . . .	30.311	30.534	30.206	30.078	30.047	30.245	30.048	29.912	30.123	29.812	30.338	29.934
2 . . .	30.415	30.267	30.256	30.214	29.962	30.057	30.010	29.893	30.028	29.782	30.315	30.261
3 . . .	30.361	30.019	30.434	30.216	29.918	29.998	29.976	30.033	30.159	30.201	30.162	30.238
4 . . .	30.266	30.527	30.314	29.986	29.918	30.102	30.006	30.135	30.034	30.236	30.168	30.055
5 . . .	30.181	30.557	30.231	29.749	30.200	29.983	30.069	30.199	30.207	30.084	29.955	30.205
6 . . .	29.940	30.071	29.860	29.795	30.194	29.950	30.005	30.219	30.111	30.165	30.166	30.125
7 . . .	30.053	*	30.426	30.053	29.938	29.897	29.889	30.148	29.921	30.235	30.125	30.064
8 . . .	30.143	30.432	30.325	30.207	29.899	29.809	29.982	30.048	30.176	30.071	29.862	30.303
9 . . .	29.971	30.528	29.859	29.997	29.871	29.726	30.080	29.992	30.330	29.993	29.796	30.352
10 . . .	29.626	30.249	29.685	29.757	29.889	29.645	30.028	29.985	30.251	30.089	29.943	30.349
11 . . .	30.198	30.016	30.149	29.838	30.166	29.853	29.910	29.944	30.144	30.046	30.127	30.248
12 . . .	30.134	30.481	30.192	29.877	30.112	29.748	29.721	29.929	30.047	30.020	30.426	30.242
13 . . .	29.971	30.280	30.054	29.903	30.010	29.946	29.805	30.076	29.997	29.922	29.982	29.962
14 . . .	30.362	29.800	29.893	29.920	29.600	30.136	29.841	30.137	30.079	30.217	30.249	30.127
15 . . .	30.404	29.885	30.104	30.010	29.948	30.011	29.846	30.055	30.043	30.457	30.345	30.230
16 . . .	30.201	29.868	30.077	30.085	30.139	30.002	29.864	30.032	29.866	30.422	30.577	29.830
17 . . .	29.955	30.529	29.766	30.058	30.071	29.960	30.075	30.057	30.028	30.167	30.313	29.880
18 . . .	30.214	30.661	29.727	29.829	29.868	29.816	30.243	30.004	30.092	30.053	30.191	30.067
19 . . .	30.195	30.477	29.932	29.792	29.795	29.872	30.163	29.937	30.072	30.134	30.150	30.345
20 . . .	29.843	30.215	29.970	29.986	29.646	29.879	30.034	26.946	29.936	30.319	29.960	30.323
21 . . .	30.317	30.287	30.108	29.858	29.740	29.826	30.066	29.986	29.890	30.262	29.776	30.357
22 . . .	30.536	30.093	29.901	29.606	29.854	30.002	30.144	29.924	29.945	30.229	29.993	30.381
23 . . .	30.542	30.254	30.038	29.767	30.007	29.988	29.983	30.032	29.883	30.245	30.029	29.876
24 . . .	30.211	29.885	30.173	30.099	30.046	29.853	29.870	30.103	29.717	30.090	30.191	30.003
25 . . .	30.325	30.247	29.943	30.190	29.866	29.826	29.988	30.094	29.969	29.859	29.945	29.980
26 . . .	30.102	30.503	30.026	30.032	29.767	29.869	30.056	30.105	30.112	30.066	30.204	29.734
27 . . .	30.039	30.431	30.128	29.890	29.806	29.897	30.064	30.072	29.974	29.983	30.508	30.011
28 . . .	30.075	30.378	30.050	29.783	29.706	29.900	30.074	29.921	30.049	29.729	30.500	30.179
29 . . .	29.926	...	29.872	30.006	29.937	29.854	30.094	30.050	29.920	29.541	30.198	30.019
30 . . .	29.738	...	29.834	30.071	29.820	29.986	30.069	30.105	29.892	29.919	30.050	30.017
31 . . .	30.142	...	29.923	...	30.106	...	30.065	30.174	...	30.137	...	30.199

* Observation not taken.

MONTHLY MEAN BAROMETER.

	30.152	30.273	30.047	29.955	29.930	29.921	30.002	30.040	30.033	30.080	30.151	30.126
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DAILY AND MONTHLY MEAN TEMPERATURE.

TABLE showing Daily and Monthly Mean Temperature at Indianapolis, Ind., for each day and month of the year 1883, as recorded at the United States Signal Office.

DATE.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1 . . .	25.7	14.7	52.1	36.1	58.7	62.9	78.8	71.6	72.3	58.8	38.0	49.5
2 . . .	21.0	28.7	44.5	36.7	64.3	72.0	82.8	71.5	73.1	55.5	41.0	32.5
3 . . .	27.0	43.3	33.7	43.4	72.8	71.1	84.1	65.3	64.2	52.1	47.1	33.1
4 . . .	22.3	20.2	34.3	57.3	68.2	71.1	76.5	65.8	69.3	49.5	52.5	16.6
5 . . .	28.0	11.7	31.3	62.0	52.1	75.9	79.9	66.7	61.5	53.7	57.2	45.3
6 . . .	31.7	24.7	39.5	44.0	57.0	74.1	81.9	65.3	61.9	58.4	50.6	54.3
7 . . .	30.2	*	22.6	41.0	69.1	72.3	79.1	67.1	65.2	58.5	46.4	52.9
8 . . .	22.7	22.3	29.3	47.0	73.1	73.6	65.4	69.7	54.9	64.8	58.0	39.4
9 . . .	17.0	24.7	43.1	55.6	75.3	71.6	68.1	70.1	52.2	72.6	60.7	39.6
10 . . .	19.0	24.3	32.1	58.8	65.4	70.2	71.4	70.7	56.5	68.8	54.3	40.3
11 . . .	16.7	33.7	29.8	51.3	55.2	68.1	74.1	73.3	59.7	65.7	44.4	40.8
12 . . .	26.7	28.0	35.2	55.9	55.5	73.6	74.2	75.5	62.1	64.5	30.4	41.4
13 . . .	26.0	38.0	47.7	68.0	54.6	65.0	74.3	68.5	68.0	63.3	29.1	46.0
14 . . .	14.2	53.7	54.2	75.9	66.4	65.5	75.9	66.3	71.7	52.0	24.3	29.2
15 . . .	21.3	53.7	28.9	57.0	48.9	69.3	76.6	69.7	74.5	45.5	19.4	21.0
16 . . .	31.3	59.2	32.0	55.5	57.3	78.2	77.0	71.2	73.0	45.0	21.8	24.0
17 . . .	35.2	18.7	45.7	61.1	63.4	78.4	71.5	74.1	59.7	59.0	37.2	20.5
18 . . .	29.3	23.3	48.5	69.0	70.8	78.0	67.6	76.9	61.4	61.3	45.1	20.7
19 . . .	33.3	35.3	21.0	55.7	72.3	73.4	70.5	81.7	67.0	62.4	49.7	17.7
20 . . .	21.7	39.1	23.8	52.9	56.5	72.6	70.9	76.8	68.5	46.5	59.5	24.6
21 . . .	5.8	33.5	28.0	60.7	41.6	73.7	78.8	75.4	59.7	42.4	63.2	22.3
22 . . .	3.0	34.9	33.5	54.6	42.9	76.2	83.3	81.1	61.4	43.6	51.2	20.7
23 . . .	8.7	32.9	28.7	39.5	53.2	78.8	83.8	66.3	62.0	44.0	52.1	33.7
24 . . .	29.3	43.8	34.8	39.9	62.3	77.0	73.2	64.3	55.6	46.3	51.7	30.8
25 . . .	19.7	32.4	45.7	46.8	71.7	63.3	73.2	66.8	54.4	47.5	55.9	28.9
26 . . .	29.3	24.9	35.7	56.4	60.7	59.4	77.2	70.5	52.6	47.2	43.1	39.9
27 . . .	37.7	30.4	34.1	60.7	60.8	62.7	77.4	70.9	64.3	49.9	34.1	23.6
28 . . .	33.3	41.2	35.6	57.0	58.6	65.9	72.5	70.1	62.5	58.6	38.0	26.5
29 . . .	35.0	...	37.2	47.0	60.5	74.2	68.3	65.8	67.1	59.1	43.7	43.3
30 . . .	35.3	...	37.1	53.2	59.4	76.1	68.9	64.9	60.5	54.4	40.8	42.0
31 . . .	21.7	...	38.8	...	59.3	...	69.3	67.6	...	45.9	...	35.2

MONTHLY MEAN TEMPERATURE—(° FAHRENHEIT.)

	24.5	32.0	36.1	53.3	60.9	71.5	75.1	70.4	63.2	54.8	45.0	34.4
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* Observation not taken.

METEOROLOGICAL TABLES.

11

TABLE

Of Annual Means for the years 1872 to 1883, arranged for comparative purposes, as compiled from the Records at the Weather Observation Office, at Indianapolis, Indiana.

YEAR.	Annual Mean Barometer --Inches.	Annual Mean Tempera- ture--Degrees.	Annual Mean Relative Humidity--Per Cent.	Maximum Temperature during the year--De- grees.	Minimum Temperature during the year--De- grees.	Annual Prevailing Direc- tion of Wind.	Number of Clear Days.	Number of Fair Days.	Number of Cloudy Days.	Average amount of Cloud- iness--Scale, 0.10.	Number of days on which 0.01 inch or more of Pre- cipitation.	Total amount of Precipi- tation.	Greatest Rainfall in 24 consecutive hours--In- ches.	Number of days on which the Maximum Tempera- ture was below freezing.	Number of days on which the Minimum Tempera- ture was below freezing.	Number of days on which the Temperature was above 90°.
1872. . . .	30.044	50.8	67.5	96.0	-11.0	SW.	85	142	139	5.0	122	34.07	3.71	49	120	17
1873. . . .	30.004	52.0	69.2	95.0	-13.0	SW.	97	141	127	5.0	145	52.32	3.73	38	99	9
1874. . . .	30.037	55.0	63.0	97.0	-2.0	NW.	97	150	118	5.0	120	43.60	2.61	17	83	27
1875. . . .	30.005	50.5	66.1	92.0	-18.5	W.	81	138	146	5.0	155	54.58	2.86	44	107	5
1876. . . .	29.997	53.2	68.1	93.0	-15.0	W.	83	126	157	6.0	155	57.53	2.70	30	101	9
1877. . . .	30.008	54.0	67.2	90.0	-11.0	SW.	98	141	126	5.0	139	39.08	2.07	20	84	0
1878. . . .	29.946	55.4	64.6	96.0	-12.0	SE.	84	159	122	6.0	148	38.62	2.03	17	68	13
1879. . . .	30.033	53.9	64.4	96.0	-22.0	S.	94	135	136	5.0	122	42.88	2.33	27	98	12
1880. . . .	30.030	54.4	65.4	94.0	-13.0	W.	106	145	115	5.0	123	50.99	2.00	26	19	9
1881. . . .	30.024	54.9	67.4	101.0	-6.0	SW.	100	140	125	5.0	112	48.74	4.30	28	91	31
1882. . . .	30.045	53.8	71.1	94.0	-10.0	NW.	107	141	117	5.3	141	53.68	3.02	19	78	4
1883. . . .	30.059	51.8	66.2	92.0	-11.0	SW.	96	157	111	5.4	164	54.12	3.71	35	106	6

Verified and corrected at the Office of the Chief Signal Officer of the Army, Washington, Feb. 26, 1884.

TABLE showing the product of each principal crop for the years designated, with the
Agriculture at

PRODUCTS.	1883.	1882.	1881.
Corn produced, bushels	95,620,000	107,484,300	79,618,000
Corn, average yield per acre, bushels	27.	31.3	21.8
Corn, number of acres	3,541,482	3,438,332	3,657,800
Corn, value per bushel—cents	0.41	0.48	0.60
Corn, total valuation	\$39,204,200	\$51,592,464	\$47,770,800
Wheat produced, bushels	28,447,800	45,461,800	31,353,000
Wheat, average yield per acre, bushels	14.	16.5	10.8
Wheat, number of acres	2,735,370	2,763,000	2,903,100
Wheat, value per bushel	\$1.05	\$0.90	\$1.27
Wheat, total valuation	\$27,625,410	\$40,915,620	\$39,818,310
Rye produced, bushels	250,743	263,940	249,000
Rye, average yield per acre, bushels	9.9	10.8	10.2
Rye, number of acres	25,258	24,522	24,400
Rye, value per bushel	\$0.65	\$0.67	\$0.93
Rye, total valuation	\$162,983	\$176,840	\$231,570
Oats produced, bushels	21,304,100	18,853,200	15,711,000
Oats, average yield per acre, bushels	29.6	26.8	23.
Oats, number of acres	717,560	703,490	683,000
Oats, value per bushel	\$0.32	\$0.35	\$0.42
Oats, total valuation	\$6,817,312	\$6,598,620	\$6,598,620
Barley produced, bushels*	304,956	415,800	385,000
Barley, average yield per acre, bushels	19	25.5	26.
Barley, number of acres	15,792	16,280	14,800
Barley, value per bushel	\$0.61	\$0.75	\$1.05
Barley, total valuation	\$187,526	\$311,850	\$404,250
Buckwheat produced, bushels*	70,784	88,480	79,000
Buckwheat, average yield per acre, bushels	8.6	11.2	11.
Buckwheat, number of acres	8,158	7,920	7,200
Buckwheat, value per bushel	\$0.90	\$0.77	\$0.99
Buckwheat, total valuation	\$63,706	\$68,130	\$78,210
Potatoes produced, bushels*	8,353,412	7,227,060	2,961,910
Potatoes, average yield per acre, bushels	95.9	80.6	35.
Potatoes, number of acres	87,100	89,704	84,626
Potatoes, value per bushel	\$0.50	\$0.50	\$1.06
Potatoes, total valuation	\$4,176,701	\$3,613,530	\$3,139,625
Tobacco produced, pounds*	7,706,110	9,108,860	7,719,373
Tobacco, average yield per acre, pounds	588.	806.	717.
Tobacco, number of acres	13,092	11,298	10,760
Tobacco, value per pound	\$0.07	\$0.07	\$0.07
Tobacco, total valuation	\$539,428	\$637,620	\$578,952
Hay produced, tons*	1,831,137	1,649,633	1,374,694
Hay, average yield per acre, tons	1.56	1.31	1.20
Hay, number of tons	1,167,323	1,260,136	1,145,578
Hay, value per ton	\$0.09	\$0.09	\$12.20
Hay, total valuation	\$16,480,233	\$14,846,697	\$16,771,267
Acreage cultivated, total	8,311,135	8,314,682	8,531,264
Valuation, total	\$94,657,199	\$118,761,371	\$115,397,604

*1883 crops of potatoes, tobacco and hay taken from Indiana Report Bureau of Statistics.

average yield per acre and valuation, taken from the reports of the Department of Washington.

1880.	1879.	1878.	1877.	1876.	1875.	1874.	Averages of 10 years.
99,229,300 29. 3,421,700 0.40 \$39,691,720	134,920,500 33. 4,088,500 0.34 \$45,872,970	138,252,000 32.8 4,215,000 0.27 \$37,328,040	96,000,000 30. 3,200,000 0.34 \$32,640,000	99,000,000 30. 3,300,000 0.34 \$33,630,090	95,000,000 34. 2,794,117 0.39 \$37,050,000	74,624,000 27. 2,763,852 0.51 \$38,058,240	101,974,810 29.5 3,442,078 0.40 \$40,286,843
49,766,758 16.8 2,962,307 \$0.99 \$49,269,090	43,709,960 20.3 2,153,200 \$1.17 \$51,140,653	33,136,000 16. 2,071,000 \$0.81 \$26,840,160	24,600,000 14.5 1,696,552 \$1.13 \$27,798,000	20,000,000 11. 1,818,181 \$1.02 \$20,400,000	17,280,000 9. 1,920,000 \$0.97 \$16,761,600	23,331,000 12.2 1,912,377 \$0.94 \$21,931,140	31,708,631 14.1 2,293,508 \$1.00 \$33,189,998
304,038 13.3 22,860 \$0.70 \$212,827	504,000 17.5 28,800 \$0.71 \$357,840	435,000 14.5 30,000 \$0.51 \$221,850	540,000 15. 36,000 \$0.56 \$302,400	520,000 12.2 42,622 \$0.71 \$369,200	330,000 12. 27,500 \$0.75 \$247,500	397,000 14.5 27,379 \$0.77 \$305,690	379,372 12.9 28,934 \$0.69 \$258,870
15,710,978 24.7 636,072 \$0.33 \$5,184,623	14,028,310 28.3 495,700 \$0.28 \$3,927,927	16,487,200 29.6 557,000 \$0.20 \$3,297,440	13,750,000 25. 550,000 \$0.24 \$3,300,000	13,270,000 22.7 584,581 \$0.31 \$4,113,700	18,000,000 29. 620,689 \$0.33 \$5,940,000	11,628,000 19. 612,000 \$0.44 \$5,116,320	15,874,278 25.7 616,009 \$32.2 \$5,089,456
410,000 25. 16,400 \$0.81 \$332,100	550,800 27. 20,400 \$0.78 \$429,624	500,000 25. 20,000 \$0.89 \$445,000	400,000 15.2 26,315 \$0.79 \$316,000	440,000 17. 25,882 \$0.88 \$387,200	539,000 20.6 26,165 \$1.10 \$592,900	438,395 22. 20,226 \$0.85 \$374,050	
106,110 13.5 7,860 \$0.78 \$82,766	160,000 20.0 8,000 \$0.70 \$112,000	135,520 15.4 8,800 \$0.60 \$81,312	160,000 17.2 9,302 \$0.76 \$121,600	170,000 19. 8,947 \$0.95 \$161,500	155,000 14. 11,071 \$0.56 \$86,800	136,099 14.4 8,584 \$0.78 \$95,113	
3,469,200 59. 58,800 \$0.59 \$2,046,828	4,080,000 68. 60,000 \$0.41 \$1,672,800	3,840,000 64. 60,000 \$0.47 \$1,804,800	5,800,000 84. 69,047 \$0.38 \$2,204,000	4,300,000 65. 66,153 \$0.56 \$2,408,000	5,450,000 104. 42,788 \$0.36 \$1,962,000	2,091,000 60. 34,850 \$0.81 \$1,693,710	4,757,258 71.5 65,306 \$0.56 \$2,472,199
7,609,030 715. 10,642 \$0.05 \$380,451	6,644,400 8.40 7,910 \$0.05 \$332,220	8,446,000 820. 10,300 \$0.35 \$295,610	16,500,000 750. 22,000 \$0.57 \$940,500	12,750,000 500. 25,500 \$0.55 \$701,250	12,000,000 460. 26,086 \$0.94 \$1,128,000	9,833,752 683. 15,284 \$0.61 \$614,892	
1,481,760 1.48 1,001,189 \$10.30 \$15,262,128	1,411,200 1.21 1,166,281 \$9.84 \$13,886,208	1,680,000 1.40 1,200,000 \$6.06 \$10,180,800	1,050,000 1.24 846,774 \$6.50 \$6,825,000	1,150,000 1.25 920,000 \$8.57 \$9,855,500	1,050,000 1.30 807,692 \$11.49 \$12,064,500	803,900 1.13 711,416 \$13.92 \$11,190,288	1,348,232 1.30 1,022,639 \$9.69 \$13,736,261
8,137,830 \$112,462,533	8,027,791 \$117,732,242	8,172,100 \$80,495,012	6,398,373 \$73,069,400	6,789,154 \$72,184,500	6,273,115 \$75,275,550	6,125,196 \$80,103,088	7,508,064 \$94,013,880

ANNUAL REPORT, 1883.

This is the Thirty-third Annual Report and the twenty-fifth volume issued by the Indiana State Board of Agriculture. We trust it will merit the approval of the public and meet with as favorable reception as the preceding reports from this office. Great care has been taken in the compilation, and the progressive farmer will find much herein to interest him.

To those seeking more general information in regard to Indiana, we will state that there is also printed by State authority, the Report of the State Geologist, Prof. John Collett, with maps included. It is a valuable document to scientists, and indispensable to give a showing of the vast resources of the State.

The Report from the Bureau of Statistics, by Hon. W. A. Peelle, State Statistician, approaches completeness in details. We are under obligations to Mr. Peelle for advance sheets and figures in preparing this report; also for the valuable article on "Our Productive Industries," page 247.

The State Horticultural Society also has its Report out. It is creditable to all concerned, and we regret that it could not be bound with this volume.

It is but proper to state in this connection that all the Annual Reports of the State officers are in printed form, which will account for such matter not appearing in these reports, as we have aimed to "stick to the text," and make this purely an Indiana Agricultural Report.

Information as to finances may be found in the State Auditor's Report, that relating to education in the Report of the Superintendent of Public Instruction, and regarding health in the Report of the Board of Health, while each of the Public Asylums and the Penal and Reformatory Institution Reports are issued separately.

There are reported to this office ninety-two Agricultural Societies within the State, sixty-eight county and twenty-four district societies. The leading society, financially, is Montgomery county, receipts, \$12,048. The second on the list is St. Joseph county, receipts, \$11,745. See reports in table form on page 358.

According to the report of the Chief of the Bureau of Statistics, the banner county for *wheat* is Posey county, producing 839,030 bushels, an average of 13.78 bushels per acre. The best average was in St. Joseph county, being 18.7 bushels per acre.

The largest yield of corn was in Tippecanoe county, 2,253,875 bushels, average per acre, 31.32 bushels. The best average per acre was in Posey county, being 43.2 bushels per acre.

The oat crop is most prominent in Lake county, 899,300 bushels, average per acre, 41.66 bushels. Elkhart county excels with an average per acre of 43.9 bushels.

The barley crop leads off in Dearborn county, 56,433 bushels, an average of 18 bushels per acre. Huntington county excels in average, being 38 bushels per acre.

The rye crop has the largest yield in Jasper county, 27,310 bushels, average 12.41 bushels. The best average per acre is in Knox county, being 21.1 bushels.

Warrick county produces the most tobacco, 2,646,500 pounds, average, 600.79 pounds per acre. The best average was in Wabash county, 1,166.6 pounds per acre.

Allen county takes the lead in Irish potatoes, 377,760 bushels, an average of 116.12 bushels per acre. Blackford county makes the best average, 180.8 bushels per acre.

Marion county is ahead producing sweet potatoes, 32,485 bushels, an average of 118 bushels per acre. Floyd county makes the best average, 300 bushels per acre.

Allen county predominates in timothy hay, 41,447 tons. Elkhart county for clover hay, 39,712 tons. The highest average in Knox county, being 2.48 tons per acre, of timothy, and 2.9 tons per acre, of clover hay. See the table on page 12 for the average for ten years of the principal crops, and for full statement of products see page 250.

The general improvement within the State, during the past year, has been very gratifying, perhaps more so than any year in its history, especially in road making and tile drainage, of the latter of which there was 14,500 miles laid last year, and it is estimated a million of dollars have been invested in open ditches.

The increased value of lands thereby is (approximately) \$2,300,000, and the increase in value of agricultural products, as a result from drainage, \$1,000,000 annually.

When it is considered that only about 40 per cent. of the entire area of the State is in cultivation, and the vast resources of coal, stone and minerals scarcely developed, yet the total products of the State show a footing of \$317,431,878, the future of Indiana is certainly of a golden brightness.

It is with pleasure we are able to present the full proceedings of the different State industrial associations, perhaps the most valuable portion of this Report to the farming community, for the fact is becoming more evident that live stock pays best. Meat is increasing in price, while grain is diminishing in value, and lower in price than for the last twenty years. Also, with the raising of live stock the lands increase in value, but with grain exclusively, there is a constant deterioration as to fertility and value of lands.

SECRETARY.

STATE BOARD MEETINGS, 1883.

ORGANIZATION OF NEW BOARD.

AGRICULTURAL ROOMS, }
Thursday p. m., January 4. }

Board called to order. On motion of Mr. Sunman, Mr. Custer presided as chairman *pro: tem*.

Secretary called the roll. Fifteen members were present: Messrs. Mitchell, Hargrove, Hancock, Seward, Sunman, Jones, Cotteral, Dungan, LaTourette, Davidson, Graham, Ratliff, Custer, Banks and Lockhart.

On motion of Mr. Seward, the Board proceeded to the election of officers, which resulted as follows:

President	Robert Mitchell, of Gibson county.
Vice President	Samuel Hargrove, of Pike county.
Secretary	Alex Heron, of Marion county.
Treasurer	J. A. Wildman, of Marion county.
General Superintendent	Fielding Beeler, of Marion county.

EXECUTIVE COMMITTEE.

W. B. Seward, of Monroe county.
S. W. Dungan, of Johnson county.
R. M. Lockhart, of Dekalb county.
J. W. Graham, of Delaware county.

On motion of Mr. Lockhart, the following named delegates were appointed to attend the Agricultural Convention at Washington, D. C., January 23d to 29th, 1883, inclusive: Messrs. Mitchell, Lockhart and Heron.

On motion of Mr. Sunman, the following named were appointed the Legislative Committee: Messrs. Mitchell, Heron, Custer, Jones and Seward.

On motion of Mr. Lockhart, it was determined to hold the State Fair for 1883, the week commencing Monday, Sept. 24, 1883.

It was moved by Mr. Seward that the February meeting be held February 13th, 1883. Carried.

On motion of Mr. Custer, the salaries of the Secretary for this year be fixed at \$1,400; Treasurer, \$200; General Superintendent, \$250, and the members' per diem at \$5. Adopted.

Mr. Davidson moved that all unfinished business be referred to the Executive Committee. Carried.

Mr. Sunman moved that the Executive Committee be authorized to receive the bond of the Treasurer. Consent.

On motion the Board adjourned until February 13th, 1883.

EXECUTIVE COMMITTEE MEETING.

January 5, 1883.

Executive Committee met, Messrs. Mitchell, Lockhart, Dunagan, also Superintendent Beeler and Mr. Custer being present.

Treasurer Wildman presented his bond in the sum of \$40,000, which was approved, accepted and deposited in care of the Secretary.

The committee on the matter of the child hurt at the Fair Grounds, consisting of Messrs. Lockhart, Seward and Beeler, were present, and were authorized to settle with the family for doctor bills, etc., to a reasonable amount, and they proceeded on such visit at once.

On motion the committee adjourned.

FEBRUARY MEETING, 1883.

TUESDAY, FEBRUARY 13, 1883, 10 A. M.

The Board met, President Mitchell in the chair. On call of roll Messrs. Mitchell, Hargrove, Hancock, Seward, Sunman, Jones, Cotteral, Dungan, Graham, Ratliff, Custer and Banks, responded.

The minutes of the last meeting were read and approved.

Mr. Mitchell, from the Legislative Committee, reported that all matters referred to the committee had been acted upon, with the exception of the appropriation for the Farmers' Institutes, which it was not deemed best to urge at present, fearing it might jeopardize the appropriation for the interest on their bonds.

The committee was instructed to have a bill presented to the Legislature in reference to the adulteration of sugar and syrup. Their report was then concurred in and the committee continued.

A communication from John Farley, Toledo, Ohio, was presented and read, asking that this Board appoint a committee to meet with them February 21st, next, to arrange for a fair circuit and discuss matters of mutual interest. The invitation was accepted, and the President appointed Messrs. Lockhart, Custer and Banks, to serve as such committee.

On motion of Mr. Ratliff, the Secretary was instructed to have the posters for the coming State Fair similar to those of last year.

On motion of Mr. Hancock, and after full discussion of the matter, by Messrs. Ratliff, Hancock, Seward, Hargrove, and others, Mr. Seward was directed to prepare a full report of the Mechanical Exhibit of State Fair, 1883, for the annual report.

The President announced the follow superintendents of departments for the coming fair, 1883.

DEPARTMENT SUPERINTENDENTS.

Horse Department—W. A. Banks.
 Cattle Department—S. W. Dungan.
 Hog Department—D. Jones.
 Sheep Department—J. N. Davidson.
 Poultry Department—T. W. W. Sunman.
 Agricultural Department—H. LaTourette.
 Mechanical Department—R. M. Lockhart and W. W. Cotteral.
 Carriage, Wagons, Furniture, Book G., lower floor—J. Ratliff; upper floor, C. B. Stuart.

Textile Fabrics—Woman's State Fair Association.
 Horticultural Department—J. M. Graham.
 Geology and Natural History—Prof. J. Collett.
 Power Hall and Engines—W. B. Seward.
 Gates—L. B. Custer.
 Amphitheater—B. H. Hancock.
 Space in Exposition Building—S. Hargrove.

On motion, the Board adjourned until 2 p. m.

AFTERNOON SESSION.

Board met pursuant to adjournment

On motion of Mr. Jones, the appointment of two trustees for Purdue University was made the special order for Wednesday afternoon at 2 o'clock.

The Board was then addressed by Gen. John Coburn, Maj. James A. Wildman and Mr. Lyon, of the Encaustic Tile Works, as to some plan by which the Indianapolis Board of Trade and this Board might secure a greater amount of success for the State Fair. After a full discussion of the matter by the above named gentlemen, and Messrs. Seward, Mitchell, Jones and Heron, Mr. Jones offered the following resolution, which was unanimously adopted:

Resolved, That the Indianapolis Board of Trade be, and is hereby requested to appoint a committee of four (4) of their number to act and co-operate with the Executive Committee of the Board of Agriculture, in arranging and working up the coming State Fair.

Mr. Banks moved that the Board offer a premium to the successful Indiana exhibitors at the Chicago Fat Stock Show. Adopted.

On motion of Mr. Dungan, the President appointed a committee consisting of Messrs. Dungan, Banks and Jones, to classify and fix the premiums for the above.

The matter of protest on award of premium on sash lock, was taken up and discussed, and on motion the action of the committee sustained.

The motion to adjourn until 7:30 this evening was lost.

On motion the Board then adjourned to meet Wednesday morning, Feb. 14, at 8:30.

SECOND DAY.

MORNING SESSION.

WEDNESDAY, February 14.

The Board met at 8:30 A. M. President Mitchell in the chair. Members present, Messrs. Mitchell, Hargrove, Hancock, Jones, Dungan, LaTourette, Davidson, Graham, Stuart, Ratliff, Custer, Banks and Lockhart.

Minutes of yesterday's meetings read and approved.

Mr. Dungan, from the committee appointed to classify and fix amounts to be offered as premiums to Indiana exhibitors at the next Chicago Fat Stock Show, presented and read the following report:

Your committee appointed to arrange a list of premiums to be offered by the Indiana State Board of Agriculture to successful Indiana exhibitors at the Chicago Fat Stock Show for 1883, submit the following:

ON FAT CATTLE.

Best steer or spayed heifer 3 and under 4 years	\$50 00
Best steer or spayed heifer 2 and under 3 years	50 00
Best steer or spayed heifer 1 and under 2 years	50 00

ON FAT SHEEP.

Best wether 2 and under 3 years	\$25 00
Best wether 1 and under 2 years	25 00
Best ewe 2 and under 3 years	25 00
Best ewe 1 and under 2 years	25 00

ON FAT HOGS.

Best barrow 1 and under 2 years	\$25 00
Best barrow under 1 year	25 00
Best sow 1 and under 2 years	25 00
Best sow under 1 year	25 00

S. W. DUNGAN,
W. A. BANKS,
DICK JONES,
Committee.

After a full discussion of the above report by Messrs. Stuart, Lockhart, Banks, Jones, Dungan and Custer, it was thought best to send for Mr. Seward that the Board might hear from him before voting upon it. Mr. Seward appearing, offers as an amendment: "That premiums be offered for fat stock at the Indiana State Fair." After discussion by Messrs. Lockhart, Banks and Ratliff, the question was put, and the amendment lost. On motion, the report was then concurred in.

Mr. Lockhart presented and read the following report:

Your committee appointed at the January meeting to examine the claim of Mr. and Mrs. Frolicker for injuries sustained by their child during the State Fair of 1882, being knocked down by a traction engine, beg leave to report. We made a careful examination of the case, and found:

First—That the engineer in charge of the engine had gone beyond the lines allowed for the showing of such machinery, and was very reckless in handling the machine, and that the owners of the engine should have been held responsible for any damage that was done to said child for violating the orders given, not to operate machinery only in that portion of the ground allotted to them.

Second—That the mother of the child was also to blame in allowing it to be taken in charge by a young girl, who ventured too near the grounds on which the machinery was being shown.

A demand has been made on the State Board of Agriculture by an attorney in the interest of the parents of the child, for the sum of five hundred dollars, for damages sustained by it. Your committee, after taking the matter under careful consideration, decided that, while they are not willing to admit a liability on the State Board of Agriculture for such accident, the circumstances attending the case are such as to demand consideration at our hands. Mr. Charles Merrifield, of this city, being conversant with all the circumstances in the case, your committee were very fortunate in securing his services in making a settlement with the parents of the child, by paying them the sum of one hundred dollars in full for all claims or demands against the Board for such injuries.

R. M. LOCKHART,
SAMUEL HARGROVE,
Committee.

After a statement from Mr. Lockhart that he thought a portion of the amount awarded by the Board would be refunded by the owners of the engine, the report was accepted, and necessary steps taken to obtain some amount from the owners of the engine.

On motion of Mr. Dungan, the Board resolved itself into a committee of the whole on revision of the Rules and Regulations, Mr. Dungan in the chair. After deliberation, the committee arose, President Mitchell assumed his seat and called to order. Mr. Custer, from committee on the whole, reported progress, and asked leave to sit again, which was granted.

On motion, the Board adjourned to meet at 1:30 P. M.

AFTERNOON SESSION.

The Board met at 2 P. M., President Mitchell, in the chair. All members of the Board were present except Mr. Cotteral.

On motion of Mr. Seward, the Board proceeded to the election of one of their number as a Trustee for Purdue University, the same to serve during the unexpired term of Jacob Mutz. Mr. L. B. Custer was elected such trustee.

The Board then proceeded to elect two of their number to serve as Trustees of Purdue University for three years, from August 26, 1883. Mr. Samuel Hargrove and Mr. W. A. Banks, receiving a majority of the votes cast, were declared elected.

Mr. L. B. Custer, declining to accept the Trusteeship of Purdue University, to serve during the unexpired term of Mr. Mutz, Mr. Samuel Hargrove was appointed to fill the vacancy.

On motion of Mr. Seward, several members of the Indianapolis Board of Trade, who were present, were invited to address the meeting. Addresses were made by Messrs. Martindale, Coburn and Caven, in reference to some action being taken to secure greater inducements to increase the attendance at the State Fair. Gen. Coburn presented a draft of a bill which, on motion of Mr. Seward, was referred to a committee of five, consisting of Messrs. Mitchell, Stuart, Seward, Lockhart and Jones, to report Thursday afternoon.

On motion, the Board resolved itself into a committee of the whole, on revision of the rules and regulations, Mr. Dungan in the chair. After deliberation the committee arose, President Mitchell resumed his seat and called the Board to order.

Mr. Custer, from committee on whole, reported progress and asked leave to sit again, which was granted.

The Board then adjourned to Thursday morning at 9 A. M.

MORNING SESSION.

THURSDAY, FEBRUARY 15, 1883.

The Board met at 9 A. M., President Mitchell in the chair. Present, Messrs. Mitchell, Hargrove, Hancock, Seward, Jones, Cotteral, Dungan, LaTourette, Davidson, Graham, Stuart, Ratliff, Custer, Banks and Lockhart.

The meetings of the preceding sessions were read, and on motion approved.

On motion of Mr. Stuart, the report of the Committee on Fat Stock Show at Chicago, was referred back to the committee, the President requesting Mr. Stuart to act with the Committee.

Mr. Lockhart presented and read the following report:

Mr. President—Your committee to whom was referred the examination of papers prepared in answer to a series of questions propounded by Governor Porter, at the annual meeting of 1882, and for which His Excellency offers a special premium of twenty-five dollars, have had the same under consideration, and beg leave to make the following report:

Your committee has carefully examined the answers returned from a large number of counties in the State, and found many of them very full and interesting. We decide that the report from the county of Gibson is entitled to the premium offered.

R. M. LOCKHART,
SAMUEL HARGROVE.

On motion, the report was adopted.

On motion, the Executive Committee was authorized to have all necessary repairs made to Exposition Building and Fair Grounds.

Mr. Lockhart, from the committee on the whole, reported matters referred to him for action. The change in Rule 2 was changed as found in the Premium List.

The Secretary, with Messrs. Lockhart, Seward and Cotteral were appointed a committee to secure the services of an expert to make a report upon the articles exhibited in the Mechanical Department.

Mr. Seward presented a bill, as prepared by direction of the Board, in reference to the matters between this Board and the Indianapolis Board of Trade. After a discussion by Messrs. Mitchell, Custer, Ratliff, Jones and Hancock, the bill, on motion of Mr. Hargrove, was concurred in.

The Board then adjourned to meet at 2 P. M.

AFTERNOON SESSION.

The Board met at 2 P. M., President Mitchell in the chair; all members present.

On motion of Mr. Banks:

Resolved, That the arrangement of the programme, so far as the races are concerned, be left to the executive committee.

Adopted.

Judge Martindale and General Coburn addressed the Board in behalf of the Board of Trade. General Coburn read a memorial which he had prepared, and, after discussion by several members, and on motion of Mr. Stuart, Mr. Seward was directed to put it in proper shape for submission to the Legislature.

On motion of Mr. Seward:

Resolved, That the amount of money paid as premiums in Ladies' Department be the same this year (1883) as last year.

On motion of Mr. Stuart, a communication from the Swine Breeders' Association relative to classifying hogs, was ordered laid upon the table.

Mr. Hargrove presented and read the following report:

Mr. President—Your committee to whom was referred the county reports, submitted by a large number of counties of this State competing for a premium of a silver medal, offered by the State Board of Agriculture, have had the same under consideration, and beg leave to make the following report: We have carefully examined reports from at least forty county and district societies, and find many of them of great value. We think the medal should be awarded to Washington County Agricultural Society. Respectfully submitted,

R. M. LOCKHART,
SAMUEL HARGROVE,
JOHN RATLIFF.

On motion of Mr. Stuart, the report of the committee of the whole on revision of the rules and regulations was adopted, with amendments and alterations. The changes in rules and regulations are as found in the published premium list 1883.

The President appointed the following standing committees:

EXECUTIVE AND FINANCE COMMITTEE.

Messrs. Mitchell, Seward, Dungan and Graham.

RULES AND REGULATIONS.

Messrs. Carter, Jones and LaTourette.

FAIR GROUNDS.

Messrs. Hargrove, Davidson, Ratliff.

UNFINISHED BUSINESS.

Messrs. Hancock, Cotteral.

PREMIUM LIST.

Messrs. Banks, Sunman, Stuart.

CREDENTIALS.

Messrs. Davidson, Custer.

On motion of Mr. Banks, all unfinished business was left with the Executive Committee.

The following is the allotment of committees for 1883:

On Horses—Messrs. Banks, Mitchell, Hancock, Davidson, Stuart, Jones, one each.

On Jacks and Mules—Messrs. Hargrove, Dungan and Ratliff, one each.

On Cattle—Messrs. Davidson, Custer, Jones, Dungan, Mitchell, Ratliff, one each.

On Sheep—Experts.

On Hogs—Messrs. Hancock, Sunman, Cotteral, LaTourette, Banks, Graham, one each.

On Agricultural Products—Messrs. LaTourette, Sunman, Cotteral, one each.

On Mechanical Department—Experts, Seward, Lockhart, Graham and Custer, one each.

Gate Keepers—Custer, Mitchell, Seward, Davidson, Jones, Banks, one each.

On motion, adjourned to meet 10 a. m. Sept. 24, 1883.

EXECUTIVE COMMITTEE MEETINGS.

AGRICULTURAL ROOMS, }
Wednesday, March 28, 1883. }

The Executive Committee met on call of President Mitchell, at 2 o'clock p. m. on Wednesday, March 28, 1883. Present, Messrs. Dungan, Graham Lockhart, Mitchell and Seward.

The Secretary was authorized to so change premium list that second premium will be in every instance one-half amount of the first.

It was also ordered that "mare, colt by her side," remain upon the premium list, and first and second premium be offered for the same.

By request of the Woman's Department, it was ordered that the manufacturing by sewing machines be prohibited in their department, and that no objectionable exhibit be placed at head of stairs in the Exposition Hall. On motion, the amount of premium offered for Woman's Department exhibit was increased to \$800.

Communications were read from Messrs. Perry and Noe in reference to Natural History, etc., Department, and the premium list was altered as follows: Third premium to be abolished; sixth premium to read, "Collection of mounted and stuffed birds, animals and reptiles illustrating the natural history of the State." Collection birds' eggs to be stricken out. A premium of \$10 and \$5 to be offered for collection American woods, not less than twenty-five varieties; and a premium of \$5 and \$3 for collection of curiosities to consist of relics of the war and of historical interest.

The Superintendent was authorized to build twenty additional buildings, to commence at south bridge and run north.

Owing to non-appropriation by the State, and lack of funds, the premium list on hogs and sheep was revised, and the amount offered slightly reduced, as found in the list.

The Secretary was authorized to order 1,000 cards and 300 posters for the Toledo circuit.

On motion of Mr. Dungan, there will be inserted at the head of Sheep Department the rule in reference to expert judges, as found in the list.

After directing that each member of the Board be allowed twelve complimentary tickets, and that expert judges on sheep be provided by the Secretary and Superintendent of the Sheep Department, the Board adjourned at 6 p. m., to meet at the call of the President.

AGRICULTURAL ROOMS, }
Tuesday, July 24, 1883. }

The executive committee of the Board of Agriculture met agreeably to call of President Mitchell, at 10 o'clock A. M. Present Messrs. Mitchell, Lockhart, Graham, Seward and Dungan, also Superintendent Beeler and Secretary Heron.

Mr. Lockhart offered the following preamble and resolution, which was adopted:

WHEREAS, The Board of Agriculture during the year 1870 purchased a lot of ground, $2\frac{1}{2}$ acres or more, east of the State Fair grounds and adjoining the Peru railroad, for the purpose of a railroad switch from said railroad on Ninth street to the Fair grounds, which was used for State Fair purposes several years; and,

WHEREAS, On petition of the residents on Ninth street, said switch was removed by order of the City Council, and repeated efforts have failed to get the privilege from the City Council to again lay said switch on Ninth street, in consequence of which the Board of Agriculture, at the last February meeting, ordered the said ground to be sold at a minimum price of \$5,000; and,

WHEREAS, After such lots had been on the market six months and over, the best offer for such lots was \$4,500, and such offer was accepted by the President, Secretary and Superintendent of the Board, and the sale made accordingly; therefore,

Resolved, That the sale of the two and one-half ($2\frac{1}{2}$) acres of land, lying east of the Exposition building on Ninth street and adjoining the Peru railroad, owned by the Board of Agriculture, to J. D. Campbell and wife, is hereby approved and confirmed.

Ordered, That a tornado policy for the amount of \$2,000 be placed on the Exposition Hall, at a rate of \$10, for a term of three (3) years.

Ordered, That the usual style of complimentary card be adopted for the present season, the color to be a blue.

Ordered, That the proposition from Frank Newby, of the When clothing store, for advertising the State Fair on all the railroads centering at Indianapolis and the county adjacent for the amount of \$460, be accepted.

Prof. Smart, recently appointed President of Purdue University, was present, and made an urgent appeal to the members of the Board to send students from their respective localities.

Mr. F. W. Davis, representing the City Water Works Co., was present by invitation, and after hearing his statement, the committee accepted his proposition to furnish water in the Exposition building by connection with the water mains, on consideration that the Board will guarantee \$200 annual water rent for a period of five (5) years, or while the building is used for exhibition purposes.

The importance of a railroad switch on the north side of the Fair grounds was considered, and Messrs. Seward and Heron appointed a committee to inquire into the possibility of the matter and report at the next meeting.

A large bill-board, near the Union Depot, was ordered. Other advertising and miscellaneous business of an advisory nature was disposed of.

AUGUST 15, 1883.

Various propositions for special attractions at the State Fair were presented, and all laid on the table.

Several propositions of a miscellaneous nature were brought up, discussed and laid on the table, and a general review of business of the coming State Fair, including advertising, improvement and other business.

AUGUST 28, 1883.

Agreeable to the call of the President, the Executive Committee met in session.

Present, Messrs. Mitchell, Dungan, Graham, Supt. Beeler and Mr. Seward.

The records of the last meeting were read and approved.

Propositions for balloons and other special attractions were received.

On motion of Mr. Seward, the Secretary was instructed to call the attention of the Board of Trade to the resolution of the Board of Agriculture at the last February meeting.

On motion of Mr. Seward, C. E. Merrifield was recommended as Superintendent of the spacing for exhibits, both in the hall and outside, with full authority; also to canvass the city for exhibitors.

STATE BOARD MEETINGS.

Exposition Grounds.

FIRST DAY.

SEPTEMBER 24, 1883.

The Board met at 2:30 p. m. The President in the chair. The roll being called, all the members responded except W. B. Seward and Charles B. Stuart.

The minutes of former meetings of the Board for the current year were read and approved.

On motion of Mr. Lockhart, it was ordered that one stallion and four mares should constitute a herd for exhibition purposes.

Mr. Sunman moved, and it was adopted, that herds shown either by a company, or individuals composing the company, be allowed to compete for premiums.

After discussion, it was ordered that the Superintendents be allowed to use their discretion in issuing tickets to exhibitors in their departments.

Also, that the General Superintendent issue permits to men attending stock to remain on the grounds during the night, and only persons holding his permit be allowed by the patrol to remain. The Secretary was instructed to furnish the Superintendents with suitable cards of permit.

On motion of Mr. Dungan, persons occupying open or temporary stalls be charged fifty cents for the same, and to any person having paid more than that amount, the difference be refunded.

After discussion, on motion of Mr. Lockhart, the Superintendent was ordered to charge supply wagons \$1.00 or \$2.00 entrance to the grounds, at his discretion, issuing written licenses to them for better security.

On motion of Mr. Sunman, the Board took recess, to meet on the Exposition grounds at 9 A. M.

SECOND DAY.

SEPTEMBER 25, 1883.

Board met according to agreement, President, Mitchell in the chair. The roll being called, a quorum responded, whereupon the minutes of yesterday's meeting were read and approved.

The following committees were reported and selected :

HORSES FOR GENERAL PURPOSES.

John M. Davis, Columbus, Indiana.
J. D. Owen, New Harmony, Indiana.
J. J. Insley, Crawfordsville, Indiana.

SWEEPSTAKES JACKS AND JENNETS.

W. W. Hamilton, Greensburg, Indiana.
J. R. McCoy, Wheatland, Indiana.
Warren Mason, Wabash, Indiana.

BOARD OF AGRICULTURE.

SHORT HORN CATTLE.

J. M. Woodruff, Johnson county, Indiana.
John Higgins, Thorntown, Indiana.
J. Buchanan, Cass county, Indiana.

JERSEY CATTLE.

J. M. Stilwell, Troy, Ohio.
W. Salmond, Columbus, Indiana.

LONG WOOL SHEEP.

O. Siples, Petersburg, Indiana.

HOGS.

C. C. Mansfield, Muncie, Indiana.
Henry D. Jones, Rob Roy, Indiana.

AGRICULTURAL DEPARTMENT.

A. Fleshman, Perrysville, Indiana.
Benjamin Wilhoit, Cadiz, Indiana.

MECHANICAL AND ART DEPARTMENT.

R. T. Brown, Indianapolis, Indiana.
Oliver Tomlinson, Muncie, Indiana.
J. L. Tomlinson, Indianapolis, Indiana.

On motion of Mr. Davidson, recess was taken to meet at the Exposition Grounds at 9 A. M.

THIRD DAY.

SEPTEMBER 26, 1883.

Board met, pursuant to recess, at 9 A. M., President Mitchell in the chair. A quorum being present, the minutes of yesterday's meeting were read and approved.

After discussion, it was ordered that there be no change in the pay of committeemen for this exhibition.

Committeemen were accepted as follows:

HORTICULTURAL DEPARTMENT.

W. H. Keeslin, Mechanicsburg, Indiana.

——— Scott, Indianapolis, Indiana.

Mrs. Dick Jones, Columbus, Indiana.

HOGS.

E. T. Thompson, Crown Point, Indiana.

After discussion it was ordered that entries in the speed ring be kept open until the evening before the class is to be called.

Recess taken until 9 A. M., September 27, 1883.

FOURTH DAY.

SEPTEMBER 27, 1883.

Board met at 9 A. M., according to recess taken, President Mitchell in the chair. A quorum being present, the calling of the roll and reading of the minutes was dispensed with.

Mr. Banks requesting the sense of the Board in regard to one or more committees to serve in light and heavy draft classes of horses, it was taken by consent that he employ two committees, and the ensuing were selected:

H. B. Jones, Rob Roy.

O. Kimmell, Ligonier.

C. Holler, South Bend.

On motion of Mr. Sunman, recess was taken to meet tomorrow morning at 9 A. M.

FIFTH DAY.

SEPTEMBER 28, 1883.

Board met promptly at 9 A. M. Roll being called, all were present except Messrs. Seward and Stuart. The reading of the minutes was dispensed with.

Prof. Smart, of Purdue University, being present, made remarks complimentary to the general condition of the University; attendance at that institution for the current term, and asked the continued kindly interest of the Board in its affairs.

President Mitchell, on behalf of the Board, assured him of the continued assistance of the Board on all proper occasions.

A unanimous vote of thanks was tendered Mr. Wm. Gause for the honorable position taken and favorable remarks toward this institution, made by him at a meeting of exhibitors at the Bates House last night.

Dr. A. C. Stevenson offered the following resolution for the attention of the Board which, after discussion, was concurred in:

“Resolved, That a committee of three be appointed to confer with Mr. S. K. Fletcher in relation to an exchange of the present Fair Grounds for a tract of eighty acres lying off northeast and just without the city limits, and immediately on the Belt Road and Bee Line and I., B. & W. Roads, and report to this Board at its first future meeting the advisability of making a change, and if so, the probable cost of preparing the same for the purposes intended, and the effects on the financial indebtedness of the society now existing.”

On motion of Mr. Sunman, the President was instructed to act as a member of it. The following were selected as the committee: Messrs. Sunman, Lockhart and Dungan.

The Board confirmed the following committees reported by Messrs. Dungan and Banks:

HORSES, ALL PURPOSES.

E. J. Thompson, Crown Point, Indiana.

HORSES, LIGHT DRAFT.

J. R. Hernley, New Castle, Indiana.

SWEEPSTAKES HORSES.

Mat Beney, Lowell, Indiana.

J. A. Winn, Greensburg, Indiana.

W. H. Meeker, Rob Roy, Indiana.

R. B. Snyder, Crawfordsville, Indiana.

On motion of Mr. Sunman, recess was taken until 2 P. M.

SEPTEMBER 28, 2 P. M.

The Board met at 2 P. M., with President Mitchell in the chair. A quorum being present, business was continued.

On motion of Mr. Hancock, the Secretary was ordered to commence drawing orders for premiums at once.

Mr. Lockhart reported the following committeemen as acting in the Mechanical Department:

R. T. Brown, Indianapolis.
Sam'l Tomlinson, Shelbyville.
John M. Seward, Bloomington.
G. Zscheck, Indianapolis.

W. J. Wheeler, Agent, laid the following proposition before the Board, action upon which, on motion of Mr. Hancock, was postponed until the January meeting:

To the Board of Agriculture:

The undersigned having purchased for exhibition purposes, in good faith, the building formerly occupied by Tyner & Hadley, would respectfully petition your honorable body to renew to us a lease on the ground covered by the same for the term of five years, on such terms as you may be willing to grant, and subject to the usual condition and stipulation.

Most respectfully submitted.

MOLINE PLOW Co.

MOLINE WAGON Co.

W. J. WHEELER, Agent.

By consent, recess was taken until to-morrow 9 A. M.

SEPTEMBER 29, 1883.

The Board met at 9 A. M. with full attendance, except Messrs. Seward and Stuart, with President Mitchell in the chair.

The minutes of the meetings held during the exposition session, the reading of which were dispensed with, were read and approved.

On motion of Mr. Hancock, it was ordered that the expert committeemen in the Mechanical and Art Departments be paid \$3.00 per diem.

Question by Mr. Banks, in regard to the pay of Mr. Dan Webb, as starter in the Speed Department. Mr. Hancock moved that he be paid \$40 for his services, which, after discussion, on a rising vote, was adopted.

Mr. Sunman, from the Poultry Department, moved that the Secretary be instructed to draw orders in conformity with the recommendation of the Awarding Committee in the unenumerated classes of his department. Adopted by consent.

On motion of Mr. Jones, it was ordered that all unfinished business be referred to the Executive Committee.

The minutes of this meeting were read and approved, whereupon, on motion of Mr. Graham, the Board adjourned *sine die*.

EXECUTIVE COMMITTEE MEETING.

AGRICULTURAL ROOMS, Nov. 13, 1883.

Agreeable to the call of the President, the Executive Committee met in the Secretary's office at 10 o'clock A. M.

Present, Messrs. Mitchell, Lockhart, Graham and Dungan. Mr. Beeler, General Superintendent, was also present. Mr. Seward was absent.

President Mitchell stated the object of the meeting, and called up as first in order the arranging of the programme for the next annual meeting in January, which, after thorough discussion and consideration, was adopted in the same order as found in the printed programme at the beginning of the proceedings of the annual meeting.

A number of accounts were examined and approved, and the official report of the President and Secretary to the Governor, to date of November 1, was examined and approved.

The report, in substance, is as follows. We omit the full details, as the same, with some additions, will be included in the annual report to the Delegate Board:

SECRETARY'S REPORT—NOV. 1.

Total receipts from all sources \$37,243 82

Disbursements.

General expenses	\$8,192 25	
Constructions and repairs	5,674 66	
Current expenses for Fair week	3,733 53	
Premium awards	9,576 00	
		<hr/>
		27,176 44
Balance in treasury		10,067 38
		<hr/>
Total		\$37,243 82

1883.

Itemized Receipts.

Jan. 4. Cash in treasury		\$4,609 39
Regular appropriation State treasury		1,500 00
Ground rents, summer season		933 35
From 50 cents State Fair tickets	\$18,534 00	
From 50 cents State Fair railroad coupons	1,125 50	
From 25 cents State Fair tickets	1,634 00	
From 10 cents State Fair tickets	625 80	
		<hr/>
		21,919 30
From entry fees, speed ring.		730 00
From rents of stalls and pens	\$786 00	
From sale of privileges	2,027 43	
From sale of privileges, women's department	13 60	
		<hr/>
		2,827 03
From committee, money returned by Mr. Jones		10 00
From City Treasurer, damage by opening street	\$150 00	
From insurance company, damage by lightning	64 75	
		<hr/>
		214 75
From sale of outlots, cash.	\$1,000 00	
From sale of outlots, notes at 6 per cent, interest	3,500 00	
		<hr/>
		4,500 00
		<hr/>
Total season's operations		\$37,243 82

The proposition from S. K. Fletcher, for exchange of the Fair ground property, referred to in the proceedings of the Board during the State Fair, was read, and the committee being present, as ordered by the chairman, they arranged to visit the proposed grounds in the afternoon, preparatory to making a report on the same at the annual meeting in January next.

The proposition to sell ten or more acres of ground adjoining the present grounds on the north by the Schurman heirs, through Alex. Metzger, Agent, for \$750 per acre, was also laid before the committee, and action deferred until the regular meeting of the Board.

Mr. Lockhart offered the following resolution, which was adopted unanimously.

Resolved, That the circular of facts issued on the date of October 6, 1883, is hereby indorsed and made a part of the record of this committee.

Considerable miscellaneous business of an advisory nature was disposed of, and the committee adjourned at noon with the understanding to meet with the Presidents of the State Associations at 2 o'clock P. M., in the rooms of the Board, to arrange for the winter meetings.

FACTS CONCERNING THE BOARD OF AGRICULTURE AND THE CITY OF INDIANAPOLIS.

The object of this circular is as a statement, showing the nature and the condition of the claims against the Board held by the guarantors to the Exposition Fund. Also, as information to new members of the Board, of which only one remains at present that was on, at the time the debts were contracted involving the present embarrassment, and as a defense of the Board against the unjust and ill-timed comments recently made by certain individuals and newspapers, tending to prejudice the community against the Board of Agriculture, believing that by a proper understanding the mutual interest of all concerned will be promoted.

While not claiming perfection, we will state that if there has ever been any want of courtesy or attention from the Board of Agriculture to the city, we are not aware of it, and will leave the reader to judge of our assertion after perusing this statement. At the annual meeting of the Delegate Board last January, the State was redistricted, solely with a view of giving a representative on the Board from Indianapolis, or, at least, Marion county. This was found to be not practicable without discrimination in making an even distribution, according to the population in the districts, and Johnson county was added to Marion. Please remember that this was the action of the delegates from each County Agricultural Society in the State, and not the members of the Board, who had no vote as such member. During the discussion the kindest feeling was expressed in regard to the citizens of Indianapolis, of which we refer for verification to the delegate repre-

senting the Marion County Agricultural Society, and the discussion as found in the Agricultural Report of 1882, beginning on page 79. There being no vacancy in this district, there was no chance to elect a new member last season (as members hold two years.)

The Board at the February meeting then passed a resolution requesting the Board of Trade to appoint a committee from their number to co-operate with the Board of Agriculture.

That resolution was laid on the table by the Board of Trade, and a bill prepared to present to the Legislature, then in session, giving to the city a special representation of three members on the Board of Agriculture, which was unanimously approved by the Board. This, with many other bills, failed, owing to the blockade in Legislative proceedings.

The resolution on co-operation was before the Board of Trade all summer, until three weeks before the Fair, when a committee of five were appointed. They were not called together, and not one of the committee made himself known to the Board of Agriculture or any of its officers. Comment is unnecessary. The Board feel that they have not received the encouragement and support from the city they had the right to expect. It is well known that one of the greatest drawbacks to a successful fair is a want of transportation to the grounds, and all attempts to reach the grounds by steam transportation have been opposed by the citizens—and another round-line of the Street Car Company on Central avenue, which was contemplated when the Exposition building was erected, was condemned this season after it was laid above Home avenue, thus showing no interest in the State Fair transportation.

At the St. Louis and Chicago fairs we see it noticed that business was suspended one day to give all employes a chance to attend the fair, and contribute to its success. How does Indianapolis contribute in this respect?

We must confess it is rather humiliating to see the city newspapers, especially ONE claiming to be a State organ, giving ten times more prominence to a base ball game than to the State Fair. Why should there be so much indifference in this respect compared with other cities, when the pecuniary interest in this annual event is certainly important to their business and the community which such papers represent? And, referring to unfavorable criticism on the management, we would remind certain parties that "those who live in glass houses should not throw stones." Wonder how much money was sunk in that enterprise, *The Indianapolis Fair Association*, created in opposition to the Board of Agriculture, the stockholders of which saved themselves by getting the property saddled on the city known as the famous "Cow Pasture Swindle?" How much money was sunk by the Woolen Exposition in the rink on Tennessee street, a purely *Indianapolis institution*, but a most lamentable failure, as was the rink itself? We will pass by any reference to the Centennial Fair in the Trade Palace, got up to raise funds to give the city some credit on the Centennial fund, as we never saw any report therefrom.

There was an Indianapolis Joint Stock Hotel Company organized, and many thousand dollars sunk in the enterprise, and the shell of a building left standing an eye-sore for many years on the corner of Pennsylvania and Ohio streets. It is certainly with a bad grace that the principal manager in that and other failures

makes a set speech of a chronic nature at every opportunity on the bad management of the State Board of Agriculture.

The Exposition enterprise originated in a proposition from the citizens of Indianapolis, by offering a guarantee against loss of \$100,000. The basis of agreement, as accepted, may be found, with full details, in the printed Agricultural Reports of 1873, beginning on page 43; also, a copy of guarantee bond, same report, page 55, and a copy of receipts given for assessments on page 60. In reference to this unfortunate matter, we do not wish to reflect on any parties as having been misled. All went into it in good faith, believing the arrangement the best for all interested, and would do so again under the same circumstances. It would have been successful, had it not been for the memorable panic of 1873, which occurred at the opening of the exhibition, after all the expense was incurred, and is the only enterprise, either private or corporate, that went into existence at that period, that survived the panic. It is the subsequent management by the citizens' committee that we here for the first time publicly review, as in the following statement, and would not at present do so were it not for the seeming prejudice against the Board of Agriculture existing in certain quarters.

The condition of affairs might be illustrated as follows: The citizens of Indianapolis invited the Board of Agriculture to go snipe hunting, the Board to hold the bag, while the citizens would drive in the game.

The Board of Agriculture are still holding the bag in the shape of a \$40,000 bonded debt. They, at that time (1873), were offered \$150,000 for their property, had \$6,000 in the treasury and without any incumbrance. The offer of \$100,000 (as security) in 421 acceptable gilt-edged bonds, was certainly very liberal on the part of the city, and the proposition was accepted.

A committee on the part of the guarantors met and advised with a committee of the Board at each and every meeting, and in all the business connected therewith, the most pleasant relations existed. The expense exceeded estimates, as is usual in such enterprises. The receipts fell short from causes beyond control. The Board had staked their all on the result, and an assessment of 90 per cent. on the guarantee bonds was necessary to meet the bank debts, which were created by depositing the bonds as collateral security to raise the money for completing the improvements.

Only a portion of the guarantors paid the full assessment. Many complained of being ruined by the panic, and more asked to be relieved by paying 60 per cent. of the assessment—the Board to carry 30 per cent. one year, with interest, which was granted. At the end of the year (1874) financial matters had grown worse. Many of those having paid 60 per cent. offered to relinquish their claim on that amount rather than pay any more. The offer was accepted by resolution of the Board, and at the same time the offer tendered to those that had paid 90 per cent., that to place them on the same footing, 30 per cent. would be returned them if they would relinquish all claim on the balance; all of which served to increase the debt of the Board.

In the meantime the Board realized but little over half required from the assessment on the bonds, and the issue of mortgage bonds was the inevitable result at the close of the year 1873. Although the joint committee had full sway in all exposi-

tion matters, and made a display of which every Indianian felt proud, yet there was some complaint, and a feeling expressed that the city ought to run the exposition part of the show. The Board intimated that they would be only too glad to have the city assume such control; so the guarantors met and selected an Exposition Committee for 1874. They were welcomed by the Board, and given full sway in every particular.

Under their direction and dictation, on the eve of such extravagant expenditures involving over \$100,000, they made useless and unnecessary expenses that season by tearing down the decorations and placing new, making a fancy pagoda that is out of place, and only serves to display the art of the painter, a Reception Hall that was an eye-sore, and had to be removed, an Art Hall for the special benefit of a showman, and a grotto and cave that was a slur on the institution, and other expenses that swelled the improvement account more than \$10,000. The advertising account for that year (\$4,478) was over \$1,000 more than for the year previous, and the receipts fell \$18,094 short of 1873.

The Chairman of the Guarantors Committee for that year (1874) is the same person who has had so much to say recently as to the bad management of others.

For the year 1875 another committee from the city tried their hand at running the Exposition, resulting in a deficit of \$11,000. They tried the experiment of importing an art gallery from New York city, at a heavy expense, which was never repeated. The floods that season was disastrous to fairs. The bridges in the grounds were washed away, and the amphitheater blown down, causing a heavy out-lay. The fair of 1876 was the worst failure on record, being almost completely snowed under by the Centennial at Philadelphia. The fair of 1877 was a success, and each succeeding year more so. By these successes the Board has been able to pay off \$20,000 of the debt during the years of 1881 and 1882, and have made \$15,000 worth of modern improvements, with a fair prospect of continued prosperity.

There is now only \$13,000 of guarantor's claims outstanding against the Board, held by 62 guarantors of the original 421. Each successful fair adds to the value of those claims. And such claims offered three years ago for twenty-five cents on the dollar can not now be purchased for fifty cents; and in this connection we would remark that no complaints have been heard from those holding such claims as to the present management.

When the assessment was made on the guarantee bonds the guarantors called a meeting and appointed a committee to employ experts to examine the books and accounts. After a week spent by the experts they reported all straight and correct. The committee on the part of the guarantors, Messrs. Morrison and Vinnedge, could bear testimony of the fact, as they had to pay the experts \$60 for their service out of their own pockets, as the guarantors would not stand any more assessments.

While our Exposition arrangements are being criticised, let us take a retrospective view of neighboring Expositions.

The Cincinnati Expositions, with a quarter of a million donations in the shape of building and improvements, have some years fallen short in receipts sufficient to pay expenses. They have not been able to accumulate much surplus, and for the season just closed the attendance fell short one-fourth from that of 1882.

The St. Louis Exposition, with its grand show and one-quarter million of bonded debt, has this season fallen behind \$25,000 in receipts sufficient to pay expenses.

The Chicago Exposition has been a success, although never known to pay any premiums. Their splendid building is on ground with the lease expired, the building is ordered removed or pay heavy rent, whereas they have been favored heretofore without cost.

The Louisville Exposition is a magnificent exhibition and grand financial failure up to this time.

In conclusion, we will say that any statement to the effect that the city has not had a fair representation in the exposition affairs is without any foundation in fact. With this statement we propose to leave matters to those interested, and let by-gones be by-gones. The Board will, as heretofore, be glad to join with the city in any enterprise that will contribute to make the Indiana State Fair and Exposition what it can and should be, the leading fair in the United States.

October 6, 1883.

EXECUTIVE COMMITTEE,
Indiana State Board of Agriculture.

ANNUAL MEETING, 1884.

AGRICULTURAL ROOMS,
TUESDAY, January 8, 1884, 10:30 A. M.

Agreeable to law, the Delegate State Board of Agriculture met in annual convention, President Mitchell in the chair, this being the thirty-second annual session.

The roll of the State Board proper was first called, when the following members responded :

- 1st District—Robert Mitchell, Princeton, Gibson county.
- 2d District—Hon. Samuel Hargrove, Union, Pike county.
- 3d District—B. H. Hancock, Fredericksburg, Washington county.
- 4th District—Hon. W. B. Seward, Bloomington, Monroe county.
- 5th District—T. W. W. Sunman, Spades, Ripley county.
- 6th District—Dick Jones, Columbus, Bartholomew county.
- 7th District—W. W. Cotteral, New Castle, Henry county.
- 8th District—S. W. Dungan, Franklin, Johnson county.
- 9th District—H. La Tourette, Covington, Fountain county.
- 10th District—Jasper N. Davidson, Whitesville, Montgomery county.
- 11th District—John M. Graham, Muncie, Delaware county.
- 12th District—Charles B. Stuart, Lafayette, Tippecanoe county.
- 13th District—John Ratliff, Marion, Grant county.
- 14th District—L. B. Custer, Logansport, Cass county.
- 15th District—W. A. Banks, Door Village, Laporte county.
- 16th District—R. M. Lockhart, Waterloo, Dekalb county.

The roll of counties in the State was then called, and the following named delegates responded and presented credentials :

LIST OF DELEGATES.

COUNTIES.	DELEGATES.	POST OFFICE.
Bartholomew County Ag'l. and Ind. Ass'n	S. R. Quick	Columbus.
Bartholomew	Richard Thomas . .	Columbus.
Blackford	W. S. Runyan . . .	Hartford City.
Boone	John Higgins . . .	Thorntown.
Cass	George Zinn	Logansport.
Clark	Dennis F. Willey . .	Charlestown.
Clay	Sullivan Weaver . .	Brazil.
Clinton	H. M. Aughe	Frankfort.
Dearborn, Lawrenceburg Fair Ass'n . .	D. Lostetter, Jr . .	Aurora.
Decatur	W. W. Hamilton . .	Greensburg.
Delaware	J. M. Graham . . .	Muncie.
Elkhart	Joseph Rippey . . .	Syracuse.
Fulton	A. A. McClung . . .	Rochester.
Gibson	W. M. Cockrum . . .	Oakland City.
Grant	H. Stillman	Marion.
Hamilton	L. B. Tomlinson . .	Westfield.
Harrison	John Q. A. Sieg . . .	Corydon.
Henry	John R. Peed	New Castle.
Howard	David Smith	Vermont.
Huntington	L. T. Bagley	Huntington.
Jackson	J. H. Mattock . . .	Brownstown.
Jasper	George H. Brown . .	Rensselaer.
Jay	Curtis H. Clark . .	Portland.
Jennings	C. D. Shank	Vernon.
Johnson	John Tilson	Franklin.
Johnson County Fair Association . . .	I. N. Thompson . . .	Franklin.
Knox	Gerard Reiter . . .	Vincennes.
Lagrange	M. Balyeat	Lagrange.
Lake	Thomas Hughes . . .	Hebron.
Laporte	L. S. Fitch	Oakwood.
Madison	James A. Wildman . .	Indianapolis.
Marion	Sylvester Johnson . .	Irvington.
Montgomery	F. L. Snyder	Crawfordsville.
Noble	Orlando Kimmell . .	Ligonier.
Parke	Thomas Nelson . . .	Bloomngdale.
Perry	John C. Shoemaker . .	Indianapolis.
Pike	W. A. Oliphant . . .	Union.
Putnam	John W. Robe	Greencastle.
Randolph	Nathan Fidler	Winchester.
Ripley	T. W. W. Sunman . .	Spades.
Rush	J. T. McMillen . . .	Star P. O.
Shelby	J. L. Carson	Shelbyville.
St. Joseph	Aaron Jones	Angola.
Tippecanoe	C. B. Stuart	Lafayette.

LIST OF DELEGATES—Continued.

COUNTIES.	DELEGATES.	POST OFFICE.
Tipton	W. B. Barlow	Tipton.
Vigo	James M. Sankey. . .	Terre Haute.
Wabash	A. Bannister	Dora.
Warren	William Crow	West Lebanon.
Warrick	I. S. French	Linnville.
Washington.	Fred L. Prow	Salem.
Wayne	Joseph C. Ratliff . .	Richmond.
Wells	Branson Weaver . . .	Bluffton.

The roll of District Agricultural Societies were next called, the delegates who answered are as follows:

DISTRICT.	DELEGATES.	POST OFFICE.
Bridgeton Union	Dempsey Seybold. . .	Perth.
Edinburgh	George W. King . . .	Edinburg.
Fountain, War'n & Vermillion	David Webb.	Covington.
Henry, Madison & Delaware .	W. W. Cotteral. . . .	New Castle.
Knightstown Union	T. B. Deem	Knightstown.
Loogootee District.	Henry J. Johnson . .	Loogootee.
Miami and Fulton counties. .	Job Bruce	Wagoners.
Northeastern District	C. K. Baxter.	Waterloo.
Plainfield Agricultural. . . .	Daniel Cox	Cartersburg.
Southeastern Indiana	D. Lostetter, Jr. . . .	Aurora.
Wells and Blackford	William J. Bugh. . . .	Hartford City.
New Ross Agricultural.	John Lockridge	Mace, Montgomery county.
Eastern Ind. Agricultural . . .	William Bunyan	Kendallville.
Lawrence Agricultural Society	W. B. Flick	Lawrence.
Franklin township, Marion co	J. P. Overhiser. . . .	Acton.

The roll of State Industrial Associations was called and the following delegates responded :

ASSOCIATIONS.	NAMES.	POST OFFICE.
Woman's Industrial	Mrs. A. M. Noe . . .	Indianapolis.
State Horticultural	Sylvester Johnson . .	Irvington.
Purdue University	Prof. J. H. Smart. . .	Lafayette.
Short Horn Breeders.	S. R. Quick	Columbus.
Swine Breeds	Dick Jones	Columbus.
Wool Growers	Fielding Beeler . . .	Indianapolis.
Bee Keepers	I. N. Cotton	Trader's Point, Marion Co.

The President announced the following standing committees:

On Credentials. On part of the Board, J. N. Davidson, L. B. Custer. On part of the Delegates, Gerard Reiter, B. F. Dawson, W. B. Flick and Charles D. Shank.

Finance. Board, W. B. Seward, S. W. Dungan, J. M. Graham. Delegates, Wm. Bunyan, I. M. Thompson.

Rules and Regulations. Board, R. M. Lockhart, Dick Jones, H. LaTourette. Delegates, Daniel Cox, C. K. Baxter, and I. S. French.

Fair Grounds. Board, Samuel Hargrove, J. N. Davidson, John Ratliff. Delegates, W. M. Cockrum, Orlando Kimmell and Nathan Fidler.

Premium List. Board, W. A. Banks, T. W. W. Sunman, C. B. Stuart. Delegates, James M. Sankey, J. Q. A. Seig, M. A. McLung.

Unfinished Business. Board, B. H. Hancock, W. W. Cotteral. Delegates, D. S. Willey, J. L. Carson, and H. M. Aughe.

On motion of Mr. Lockhart, the Board then took a recess.

PROGRAMME—ANNUAL MEETING.

TUESDAY, JANUARY 8, 1884.

Organization of the Convention at 10:30 A. M., by roll call of counties.

President's Address at 1:30 P. M., followed by reports from Officers and Department Superintendents.

Appointment of joint committees of delegates and members. Nominations to fill places of retiring members.

Address by Governor Porter at 3:30 P. M.

EVENING SESSION—7:30 P. M.

Address by President J. H. Smart, on "The Relation of Purdue University to the Rural Industries."

8 o'clock P. M.—Address by Dr. W. T. Stott, of Franklin College, on "The Relation of Farm Life to the Prosperity of the Commonwealth."

WEDNESDAY, JANUARY 9—8:30 A. M.

Reports from Committees: Finance, Rules, etc., Fair Grounds, Premium List, Geology and Unfinished Business. Review of business matters.

Election of eight members at 1:30 P. M.

3 o'clock P. M.—Address by Prof. F. A. Friedly, of New Albany, on "The Profits in Farming."

4 o'clock P. M.—Address by Dr. Lemuel Moss of the State University, on "The Development of the Most Precious Resources of the State."

EVENING SESSION—7:30 P. M.

Address by Prof. W. C. Latta, of Purdue University, on "The Mission and Needs of the Agricultural College."

Address by C. R. Barnes, Professor of Botany, Purdue University, on "A Grain of Corn."

THURSDAY, JANUARY 10—8:30 A. M.

8:30 A. M.—All unfinished business.

The following carefully prepared papers will be presented, subject to the pleasure of the Convention, as time will permit:

The Industrial Progress of Women, by Mrs. Florence M. Adkinson, of Marion county.

The Importance of Mechanical Appliances to Successful Farming, by Charles E. Merrifield, of Indianapolis.

Wheat Culture, by Hon. E. S. Frazee, of Rush county.

The Grasses of Indiana, by Hon. P. S. Kennedy, of Montgomery county.

Tile Drainage, by Hon. John Ratliff, of Grant county.

Our Productive Industries, by Wm. A. Peele, Jr., Chief of the Bureau of Statistics.

Modern Agriculture, by Dr. R. T. Brown, of Marion county.

Does Farming Pay in Indiana? If Not, Why Not? by Hon. R. M. Lockhart, of Dekalb county.

Fish Culture, by Calvin Fletcher, State Fish Commissioner.

Other appropriate essays are expected. General remarks and discussion will be in order, and follow each address or essay.

AFTERNOON SESSION, 1:30 P. M.

The Board met, President Mitchell in the chair.

The President called for the report of the Committee on Credentials. They asked for further time. Granted.

The President then delivered his address, with Mr. Hargrove in the chair.

PRESIDENT'S ADDRESS.

GENTLEMEN OF THE STATE BOARD OF AGRICULTURE—By virtue of the laws of the State of Indiana, we are again assembled in our annual meeting, to review the past year's work, and to make such arrangements for the future as shall seem best for the advancement of the interests of agriculture in this State. The grindstone of time runs so swiftly and smoothly, that before we know it a year has been ground away. Only the Divine Ruler of the universe has perfect cognizance of time and control of events, and it is proper to here return thanks to Him for the constant blessings of health and prosperity, which He has vouchsafed to all the people of the State. The husbandman has been blessed with a fair recompense for his labor. The agriculturist and the manufacturer together, are the true foundation of all wealth and prosperity, and when they are prosperous all other industries are revived and strengthened, and the whole people feel the generous impulses of "good times."

PAST YEAR'S WORK.

The past year has been a fairly successful one financially for the State Board, and I am glad to say to you, that it is still on the highway of prosperity. Its financial transactions will be set forth in detail in the reports of our Secretary and Treasurer. To indicate to the public the final result of one year's work, I will state here that our total receipts for the year ending December 31, 1883, were \$37,557.44, and our total expenditures to same date were \$28,342.31, leaving a balance in the treasury of \$9,215.13.

THE MORTGAGE DEBT

Upon the fair grounds was once in excess of \$60,000. Without stopping to discuss the origin of this debt, or to blame any one for the causes that brought it, suffice it to say that for a few years past strenuous efforts have been made to reduce it. By careful management it has already been largely reduced, and hopes are entertained that a few more successful State Fairs will wipe it out entirely. It is my ambition to see the State Fair Grounds clear of incumbrance. The present debt is \$40,000, and the present value of the grounds and buildings is about \$200,000.

GEOLOGICAL DEPARTMENT.

The Geological Department of the State, which was for so many years under the control of the Board, was, by act of the General Assembly separated therefrom, and created into a separate State Department entitled the "Department of Geology and Natural History." The unexpended fund in our possession belonging to the Geological Department, has been expended for the better fitting up of the Cabinet under the supervision of Prof. John Collett, who has, by appointment of the Governor, filled the position of State Geologist and Chief of the Department of Geology and Natural History since 1879. This Board has frequently been compelled to seek his counsel and advice, and I take this public opportunity to say that his services to the cause of agriculture in Indiana are invaluable. By his untiring and earnest work in the fields of science, he has developed the hidden resources of Indiana, to the extent of making her wonderfully rich minerals and soils, known over the civilized world wherever science is known.

RAILROADS.

This Board feels greatly indebted to the railroads centering at this Capital for the very generous spirit in which they have met the requests of our Board for reduced rates of fare to persons wishing to attend our annual exhibitions and the meetings of the State Board and the Industrial Associations connected therewith. By these favors from the railroads, farmers are enabled to attend our State Fairs and the various annual meetings at a very moderate expense, and are thereby stimulated to greater efforts in agricultural pursuits. Better facilities for transferring visitors, machinery and live stock to and from the Fair grounds would be a great advantage; and it seems to me that if the railroads would construct a line from some convenient and common point to the Fair grounds they would find that it would pay a good profit upon the cost of construction.

SALE OF GROUNDS.

Some offers have been made to the Board during the past year, to exchange the State Fair grounds for other grounds, and a committee has been appointed to examine into these offers. The report of said committee will be submitted to you for your action.

TICKET SYSTEM.

The system of tickets of admission used for the past few years, has been a great source of annoyance to the Board. I call your attention to it, with the hope that your wisdom will devise some plan for relieving the Board from this annoyance in the future.

SALE OF PRIVILEGES.

In the sale of "privileges" in the future, I would most earnestly recommend that it be distinctly stated and understood that no pass tickets be issued to the purchaser.

NEW BUILDINGS.

In order to meet the growing demands upon the Board for better accommodations in the Hog and Sheep Departments, a large number of new pens were built during the last year, the cost of which will be set forth in the report of the General Superintendent. It can now be truthfully said, that our stables and pens are the best on any fair grounds in the West. The erection of the fine and convenient sheep and hog pens has caused the exhibitors of that class of stock to feel that the State Board has done its full duty toward them, and they will doubtless make strenuous efforts in the future to make their exhibits in these departments give full and ample credit to the State Fair.

FINE STOCK.

The unfortunate fact that the Illinois State Fair was held on the same days as our own tended to lessen the exhibition of fine stock, and yet it is gratifying to state that the show of fine stock generally was as good, and in some respects much better than is usually made at our State Fairs.

HORSES.

The Horse Department was about equal to the display of last year, and some very fine specimens of this noble animal, both of imported and home-bred, were on exhibition. The stock of horses in Indiana has been greatly improved in blood, size and value in the last few years, and I attribute this result to the exhibition of fine blooded animals at our State and County fairs.

CATTLE.

A larger exhibition of cattle was made than ever before, both as to number of herds and total number of animals. A very serious question, however, presents itself to all cattle breeders. Every exhibitor knows that to be successful in the show ring he must have his herd fattened to a point that generally sacrifices the breeding qualities of the animals. The capabilities of the different breeds ought to be shown in animals that could be slaughtered. For example: The easy fattening qualities of Short Horns or Herefords should be established by showing beef animals, so that the cost of production can be ascertained. When such an

animal is brought to the block, the owner realizes the market value for the carcass. Not so in fattening females for exhibition. The prize is won by the best fatted cow, but her breeding qualities, the legitimate object of a cow, have been sacrificed. The production of good beef ought to more earnestly engage the attention of the farmers of Indiana. Situated, as we are, in the center of the great grain belt of the United States, with abundant pastures, and surrounded on all sides with large and flourishing cities, with a constantly increasing Eastern and foreign market, we ought to produce and market more good beef in Indiana than any one of our neighbor States of the same extent of territory.

FAT STOCK SHOW.

And in this connection I desire to make a suggestion for the future action of the Board. Considering the great interest the people of the West take in the great fat stock shows of Chicago, and the fact of the rapidly growing demand for beef for exportation, would it not be advisable for our Board to take action to establish a fat stock show at Indianapolis some time during the autumn of this year? The first effort might not prove a financial success. But can we as a people and State, afford to stand still while every other State and people are moving forward to advanced positions in this grand industrial march to furnish the world with beef? Indiana claims to be the first State in the Union in the production of grain. Why not occupy the same position in the production of beef? Indiana farmers depend too much upon wheat. State Boards of Agriculture ought to shape the current of agriculture in their respective States, and when the farmers of a State are found, to their own detriment, running in the same channels marked out by their fathers, State Boards ought to stimulate and educate them to a different work by inaugurating splendid County and State fairs and fat stock shows, at least to the extent of inducing them to engage in mixed husbandry, which is always more profitable than when labor is confined to a single production. In connection with the fat stock show we might inaugurate a system of public sales of surplus stock, and this would go far toward defraying the expenses of the show itself. There are so many reasons in favor of, and so few against a fat stock show and a system of public live stock sales in Indiana, that I think the Board ought to risk the experiment.

INDUSTRIAL ASSOCIATIONS.

The organization of the various industries connected with agriculture, into separate associations, such as the associations of the Cattle Breeders, Swine Breeders, Poultry Breeders, Bee-Keepers, Wool-Growers, Tile-Drainage and Cane-Growers has been effected on a basis that seems to guarantee entire success, and grand results in the future. These are working in entire accord with the State Board, and giving valuable assistance in their different fields of operation. The papers prepared and read by the members of these associations at their annual meetings, and the discussions that take place upon them, are highly instructive to the people of the whole State, and form a most interesting and instructive portion of our annual reports. This State Board of Agriculture, through its officials, has always offered these In-

dustrial Associations all the assistance in its power to make their meetings pleasant and profitable, and I sincerely hope that the kind feelings now existing between them and us may ever continue, to the end, that the people may eventually realize the grand results and benefits that will come to them from these associations in the near future.

WOMEN'S DEPARTMENT.

The Women's Department at our State Fair, under its efficient officers, was managed with such consummate knowledge and skill, that it reflected great credit on the State Fair, and was one of the most interesting and valuable exhibits. The great success of this department sets at rest the question of the ability of women to do business, and has established as a fixed fact a Women's Department at all our future State Fairs.

ADDITIONAL SPACE.

Some displeasure was expressed by a portion of the exhibitors in the Mechanical Department on account of certain grievances. While it is true that the Board could have rendered better accommodations had they had a larger space for the display of that class of exhibits, it is also true that the Board made every effort to comply with every reasonable request made by exhibitors, and no class of exhibitors has been more generously treated than those in the Mechanical Department. However, it is plain to all that an increased effort must be made to satisfy that Department, to enable them to make a more successful and satisfactory exhibition of their goods, and for that purpose I recommend that hereafter, and for ever, all side shows be excluded from the grounds in order to give the space that they may occupy, to the exhibitors in the Mechanical Department. Side shows are no part of an agricultural or mechanical fair. They are immoral and disreputable in their tendency, and this State Board ought to wash its hands of the responsibility of crowding out greater interests to admit these, for no other reason than to collect revenue from them to swell the annual receipts of the State Fair.

THE CITY PRESS.

A portion of the city press of Indianapolis, has not been just in its criticism upon the work of this Board during the last year. We acknowledge the right of the press to fairly criticise their acts, but the interests of this Board and the city of Indianapolis are too closely allied to admit of any spleen or unfairness in the discussion of the questions between us. The city of Indianapolis receives almost the total financial benefits from the State Fair, for it annually brings and distributes here hundreds and thousands of dollars. The circulation and patronage of every newspaper in Indianapolis is annually largely increased and built up by the large crowds that attend the State Fair. If we were a stock company like the St. Louis Fair, and our only object was to make money for the stock-holders, these newspapers might be justified in expecting direct patronage from us. But we are a State institution, organized under the laws of Indiana, governed and limited by law, and responsible to the people of the whole State. If, therefore, we spend large

sums for advertising in the city newspapers, we must also do so in over four hundred and fifty papers scattered all over the State, and any man with business capacity will at once see that such a course would be suicidal. As the city of Indianapolis is more largely interested, financially, in the State Fair than any other portion of the State, I beg that in the future the city press will, by a friendly criticism, if necessary, and a generous support always, aid us to build up this State Fair, and consequently the city of Indianapolis and the press thereof.

PURDUE UNIVERSITY.

Purdue University, the only farmers' college in Indiana, is entitled to our hearty co-operation and support. It has only been in name, so far, an agricultural college, and we as a Board ought to help to make it one in fact. Soon after Prof. Smart's election as President of this institution, I asked him how many agricultural pupils were enrolled upon its books, and his answer was nine. I was at once convinced that this Agricultural College was doing almost nothing for agriculture. But let us not stand here and find fault with the past, but rather look earnestly and hopefully to the future, and try to make Purdue useful in the great work before us. He who thinks that the future farmer in this country will not need a scientific education, does not read very clearly the signs of the times. You and I may not live to see it, but the time will come when to be a successful farmer, a scientific education of some kind will be absolutely necessary. Then let us prepare for it. This institution of ours can only live by public favor, in annual appropriations from the State. In the past it has met few favors in that direction, while the classical colleges have lived and fattened off the bounty of the State. Why this unjust discrimination? The farmers pay a large majority of the taxes of Indiana, they make the wealth of the State. They cast a majority of the votes of the State, and why not then assert their rights, and control this question. Now, to say the least of it, I believe the time has come when discriminations in favor of any educational institution ought to cease, and that so far as State appropriations are concerned, they ought all to share alike.

But if Purdue University expects the agricultural class to do something for her in the way of an effort to influence and control public appropriations in her favor, she must show a disposition to do something for them. In my judgment this College and grounds ought to be made a great experimental station for the farmers of Indiana, not only as to grain and field crops, which has already been done to a limited extent, but as to the raising, feeding and marketing of live stock. Every farmer has not the means to try experiments, but there ought to be some common points where experiments could be tried in all the various branches of agriculture—some common source from which farmers could get their information, and why not make Purdue that great common source? It would rapidly build up the College and be a source of incalculable benefit to the farmers of Indiana.

Suppose, for instance, that Purdue owned a few fine herds of pure-bred cattle, sheep and hogs. The surplus stock could be sold to the farmers of the State at paying prices, and in that way the farmers would be getting a substantial benefit. In connection with these herds, experiments in breeding, feeding and marketing

might be made; and while it would be a lasting source of information to the farmer, it would also soon become a great source of revenue to the institution itself.

Whenever Purdue University shall undertake, in this way or some other way, to espouse the cause of the farmers of Indiana, they will rally to her support, and every farmer in the State will consider himself a committee of one to ask the gentlemen seeking his suffrage for Legislative positions whether they are in favor of helping this agricultural college, and let every farmer be prepared to say: "If you will help this farmers' college, you can have my vote; if not, my vote shall go to some one who will."

DEPARTMENT SUPERINTENDENTS.

The reports of the Department Superintendents will show you the conditions of, and the result of the work and display made in each department of the State Fair. I return my thanks to each one of these superintendents for his watchfulness of the interests of his department, and for the faithful manner in which each discharged his duty under trying circumstances.

THE GOVERNOR.

I can not close this address without referring to the kindness of the Governor of the State, as expressed in the interest he has taken in the meetings of this Board, and in all the meetings of the Industrial Associations. It is gratifying to the people of Indiana to have their Governor come in among them in their business meetings. His presence is always a source of encouragement to them, and his words of wisdom and sympathy so freely given, are heartily appreciated, and will be long remembered with deep gratitude. In the name of the farmers of Indiana, I thank him for the support he has given the cause of agriculture.

CONCLUSION.

To each member of this Board the credit of the success of the Fair belongs. All have worked in harmony as one man. It has been a great honor to me to be associated with such men, and to be the President of such a Board. With no personal motives in view, I have tried to discharge my duties in a way best calculated to advance the interests of agriculture in Indiana. I return my sincere thanks to each and all of you for the steadfast manner in which you have aided me in the discharge of my duties, and for the uniform courtesy that has been extended to me on all occasions.

I congratulate you and the agricultural people of the State on the great work you have accomplished in the last year, and close by expressing the hope that the new Board will take up the work where we leave off, and prosecute it during the coming year with wisdom and diligence.

On motion of Mr. Sunman, the suggestions in the address were referred to a special committee of three.

Mr. Hargrove appointed the following committee: Messrs. Sunman, Fitch and Lostetter, Jr.

GOVERNOR A. G. PORTER'S ADDRESS.

Governor Porter was then introduced, and referring to the address of President Mitchell congratulated the Board upon the successful work which it was doing, and the satisfactory condition of its affairs. While called the "State Board of Agriculture," it had important duties to perform not immediately connected with agriculture. It is empowered by law, at its State Fairs, to give premiums for every "article of science and art that it may deem expedient to advance the interests of the people of the State." Charged with duties so important and diverse, it should, in selecting members of the Board when vacancies occur, choose men who not only take an interest in farming, but of sound and varied knowledge, alert, energetic and progressive. There should, if possible, be brought into the Board every successive year, in order to keep up with the progress of the times, an increase of energy and knowledge.

Farmers, more than the followers of other occupations, derive help from persons who do not belong to their own vocation. Of all occupations theirs is the most important; but the aid they receive from outside of it is incalculable. I have sometimes thought, the Governor continued, that they unconsciously confess this, by the vast numbers that flock to our State Fairs where mechanical inventions are exhibited, and the usually sparse attendance at meetings for discussing purely agricultural topics. They seem to feel that the greatest help that comes to them is from these inventions. Indeed, from the preparation of the soil for planting, through the whole process of cultivating, harvesting, threshing, housing and removing to the market of consumption, the farmer avails himself of aids furnished by persons outside of his occupation. Tiles, cheap, durable and easily laid, have enabled him to prepare his lands by underdrainage for a much more profitable cultivation; improved plows, harrows, cultivators, drills, and other inventions, that have superseded the old and rude implements, have enabled him, by a better cultivation, to increase and improve his crops; the mower, reaper, binder, and similar machines have enabled him to get in his crops in favorable weather and at greatly reduced expense; and the reduction in the cost of transportation of his products, through mechanical inventions, has greatly enhanced the value of these products. When he, therefore, looks at these contrivances which have rendered him such important help, he is too apt to undervalue the advantages derived from interchange of thought upon purely agricultural themes. Through these mechanical inventions he is enabled to prepare the ground better, to put in the seed better, to cultivate the soil better, to gather in the crop better, to secure it against the vicissitudes of the weather better, and to get it to market better. He is too apt, therefore, to overlook the advantages of agricultural discussions.

The advantage of inventions is also given greater importance in his mind, when he sees how frequently those which seemed to have no relation to his business, turn out in the end to be more serviceable to his occupation than to almost any other.

Take, for instance, the electric telegraph. Before it came into use, the dealer to whom he disposed of his crops, had means of knowing the value of crops of which he was ignorant. But now, when the telegraph reports daily the condition of the crops and the state of all markets, the farmer's opportunity of judging of the prices for which his produce should sell, is as good as the dealer's to whom he disposes of them.

The value of the telegraph in furnishing facts from which predictions may be made of the state of the weather, makes it already very useful to farmers, and when signals shall be given at all railroad stations, as will soon be done, by which weather indications may be read, the telegraph will be much more serviceable. A vast mass of facts is being collected from which important generalizations must soon begin to be made that will make the Signal Service much more useful to the farmer than before.

Help, from outside his own occupation, has also come to him in many other ways. The new process for manufacturing flour is known to have added at least ten cents to the value of every bushel of wheat. The new methods for drying fruits by which fermentation is wholly avoided, and the flavor of the fruits perfectly preserved, has enlarged the market and enhanced the price of such fruits. The use of animal products, which were formerly thrown away, as being devoid of value, has enhanced the price of swine and cattle. In a letter received from the great packing house of Armour & Co., that firm say to me that "taking everything together now saved which was formerly wasted, we may say that in our own business the amount will not fall far short of \$1,000,000 annually."

Quicker and cheaper transportation has been introduced, to the incalculable advantage of the farmer. He can ship his grain from here to Liverpool as quickly as he used to make the trip with his wagon to his Ohio River market and return. In the transportation of live stock increased speed in carriage means a saving in the expense of provender, of attendance, and a less loss of weight. In fruits and other perishable products it means less liability to spoil or decay.

The reduction in the cost of transportation of a farmer's products has been much greater within the last few years than we have been at all accustomed to suppose. A bushel of wheat can be to day shipped to New York for 11 1-10 cents, and from New York to Liverpool for 10½ cents. It could not have been taken by wagon from here to the Ohio river over our old roads as cheaply as it now can be taken to Liverpool. In 1871 the cost of transporting wheat per bushel from Chicago to New York by lake and canal was 21 6-10 cents; in 1881 it was 8 6-10 cents. On fifteen leading railroads Mr. Nimmo, the United States Commissioner of Statistics, states that the reduction in the price of the transportation of grain from 1873 to 1878 was 39½ per cent.

The Ohio Commissioner of Railroads, in his report for 1881, states that, "by the decline of railroad rates in Ohio since 1869 to 1881 (twelve years), there has been saved to those who are charged with the cost of the shipping—the producer and consumer—the sum of \$337,674,755.99, and that during all that time all the taxes of Ohio, of whatever kind, amounted to \$315,966,996.34, an amount less than the amount saved to shippers of \$21,707,759.65."

The effect of this reduction of the rates of transportation has been shown in a vast increase in our domestic exports.

In 1871 our domestic exports amounted to \$442,820,178; in 1881 they amounted to \$902,319,473.

What has been the cause of this great reduction of rates? Not the benevolence of railroad companies, for they have a keen eye for profits. Partly, no doubt it is owing to consolidations of lines, enabling the roads to be run at less expense; partly, doubtless, through the effect of competition between rival lines; but very largely it has been occasioned by mechanical discovery and invention. The substitution of the steel rail, which, when well made, is almost indestructible, in place of the rapidly destructible iron rail, has been a most efficient cause of the reduction. Now a car carries fifteen tons of grain; it used to carry but ten. Now a locomotive will haul a train of thirty-six or more cars loaded with grain; it used to haul about thirty.

Improved signals, automatic brakes, and other inventions, enable more trains to run safely over a road than formerly, and thus diminish the cost of transportation.

Improved mechanism and discovery will no doubt soon lead to further reductions in the transportation of farmers' products. The largest single item of expense, I am told, in running trains, is fuel. Perhaps upon no subject is more anxious thought being bestowed than upon the economizing of heat, and doubtless it will be rewarded with success.

It is said by a careful writer that "with the present locomotive engine not over three or four per cent. of the actual units of heat in the coal employed are converted into the actual motion of the train, and the dead weight of the train and engine is three or four to one of the load carried. Not over one pound in a hundred of coal consumed on a railroad is actually and absolutely employed in the movement of the load."

The value of mechanical inventions to the farmer has proved so great, and is likely to continue to be so ever-increasing a help, that it should be the especial effort of this Board to encourage and stimulate invention by furnishing at its fairs, every facility and aid possible to inventors and to manufacturers of agricultural machinery.

On motion of Mr. Lockhart, a rising vote of thanks was tendered the Governor for his able address.

The Committee on Credentials made the following report, which was referred back to the committee after the following

DISCUSSION:

Mr. Tilson. I do not think that this matter should be hurried through. If we are entitled to a delegate, we want one. Haste gives us no opportunity to properly present our claim.

W. B. Seward. I wish to correct one error the gentleman has fallen into. If their society is properly organized under the law, they may report to this society. Under the law they are entitled to representation, notwithstanding any one else objects. There is nothing to prevent more than one society in a county. The simple statement the gentleman read would not entitle him to a seat in this body.

Mr. Tilson. We do not claim to be the Johnson County Agricultural Society. We have never asked for a representation here before, and in organizing a society of this kind we have done everything according to law. We do not ask that we be admitted in the place of the Johnson County Agricultural Association at Franklin. We have a report here as other societies, under the rule and under the law of 1852, and ask the State Board wherein we have failed in our organization. If we have so failed, I am ready to give it up.

L. B. Custer. It is not the will of the committee to cut these societies out. Let the meeting decide the matter.

Mr. Tilson. Our fairs have been opened to the world, and are represented from more than one county. At our last fair we had considerable stock from Shelby county.

Mr. Fidler. Why would it not be best for the motion to be withdrawn, and adopt the report of the committee, and refer the whole matter back to the Committee on Credentials, and report to-morrow morning?

J. Q. A. Seig. In the first place, it is the duty of that committee to report who are the members of this society. They do not report any members, but it is entirely blank. I think the report of the committee fails from beginning to the end, in what is wanted.

I. N. Cotton. These questions should be divided, and taken up one at a time. We can not vote intelligently in this matter unless we do.

Member. I do not think we can do any better than to refer it back to the committee, for their action has been rather hasty and no opportunity of acquiring sufficient evidence. Let them report on it to-morrow morning.

The report of the Committee on Credentials was referred back to the committee for reconsideration, and requested to report as early as possible.

The committee on credentials again reported (from which the list of the delegates on preceding pages is made up), which was accepted after the following

DISCUSSION.

I. N. Cotton. These reports should be taken up separately. I do not see how this convention can vote intelligently without doing so. By taking up one at a time we can reach the whole question, then we can vote "yes" or "no" as we please.

S. Johnson. I want to vote fair and intelligently on this question at issue. We don't come here to make legislation; to rule some out and some in. There should be some definite rule by which this question can be settled. The only thing the committee erred in, they did not discriminate as to the law. I would like to know whether I am a delegate or not. I do not want to come here and palm myself off for one unless I am one. I want to know what entitles me to vote here. It is not necessary perhaps to draw straight lines when two kindred associations organize in a county to exclude one and accept the other. We want to deal just and fairly in this matter.

Mr. Jones. The question of legality of delegates is settled down to the county in dispute; then I move that these counties be taken up and voted on one at a time.

S. R. Quick. We have two organizations in our county; the first is known by the name of Bartholomew Agricultural Society. It did not fully meet the demand of the county, and we organized a new one by the name of Bartholomew Agricultural, Mechanical and Industrial Association. We held a successful fair last fall; the other did not hold one, but held a trotting association, instead. We are regularly organized according to the laws of Indiana, and recorded by the county recorder. We have made a report and statement of the fair. I was sent here as a delegate, and present my credential. We have not yet pur-

chased a fair ground. It is a stock company, and stock subscribed and paid up. The other association agreed to not show, and we leased their ground in preference to buying, paying them \$250 in advance for five days.

W. B. Seward. The committee erred in taking the position that one society from a county only, is admissable, notwithstanding there might be more than one society. The law says that we shall meet in the city of Indianapolis, on Tuesday after the first Monday in January, and the presidents of county and district societies shall be lawful delegates. It does not necessarily follow that there shall be but one society in a county, there might be several societies in that county. The committee took the view that there could be but one representation. I think it is a narrow view. I want to be satisfied that this is really an agricultural and mechanical society, as stated, and if it is, we want to welcome them here, and not cut them off.

Dick Jones. There is a little misunderstanding in this matter. We have a right here to representation. One is not trying to throw the other out at all, but we are trying to get both before the Board. There is no animosity existing between the two societies.

Mr. Lockhart. The society Mr. Quick represents is in my judgment all right, and I wish to sustain him.

Mr. Seybold. From what we have heard in this matter I think this meeting has a perfect right to consider Mr. Quick a *bona fide* member, and admit him here. There is a mistaken idea about this; the motion before the house is to concur in the report of the committee. I move to amend the motion and accept Mr. Quick and the other gentleman who is representing a different organization in Bartholomew county.

Mr. Crow. Warren county should be represented here. I am vice president, and sent here in the absence of the president. I was not able to report at roll call this morning.

Mr. Bunyan. I desire to know if those delegates from Noble county are permitted to participate in this meeting, notwithstanding the reports are not here?

REPORT OF THE SECRETARY.

AGRICULTURAL ROOMS, Dec. 31, 1883.

GENTLEMEN: I have the honor to submit herewith the annual report and financial exhibit of the business of the Indiana State Board of Agriculture, for the year ending December 31, 1883:

FINANCIAL EXHIBIT.

Total receipts from all sources	\$37,557 44
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EXPENDITURES.

General cash orders	\$18,761 31	
Premium-cash orders	9,581 00	
	28,342 31	
Balance in treasury, including \$2,500 in notes, at 6 per cent. interest .	9,215 13	
	\$37,557 44	

ITEMIZED RECEIPTS.

Jan. 4, 1883, cash in treasury	\$4,609 39	
Regular appropriation, State Treasury	1,500 00	
Ground rents, summer season	933 35	
From State Fair, 50-cts. admission tickets	\$18,532 75	
From State Fair, 50-cts., railroad coupons	1,125 50	
From State Fair, 25-cts. admission tickets	1,634 00	
From State Fair, 10-cts. admission tickets	625 80	
	21,918 05	
Entry fees, speed ring		730 00
Rents, stalls and pens	786 00	
Sale privileges	2,227 43	
Sale privileges, Woman's Department	13 60	
	3,027 03	
Committee money returned by Jones & Sunman	20 00	
Expense money returned by General Superintendent	250 00	
Rebate in insurance	4 87	
Insurance Co. damage by lightning	64 75	
	339 62	
Sale of out-lots		4,500 00
	\$37,557 44	

STATEMENT SHOWING DISTRIBUTION OF EXPENSES.

GENERAL EXPENSES.

Members' per diem	\$1,389 25
Salaries Secretary, Treasurer, and General Superintendent .	1,850 00
Printing and advertising	1,237 89
Postage and stationery	422 54
Express telegrams, litigation	478 95
Janitor	240 00
Insurance	419 15
Claims paid of past years	705 75
Interest accounts	2,500 00
Total	<u>\$9,243 53</u>

CONSTRUCTION AND REPAIRS.

Lumber	\$2,715 06
Labor	2,138 32
Machinery	77 88
Roofing	210 43
Hardware	304 51
Pumps	174 03
White-washing	27 00
Painting and signs	17 13
Repairs in Main Hall	40 46
Total	<u>\$5,704 82</u>

CURRENT EXPENSES STATE FAIR.

Gate-keepers	\$224 50
Police	483 25
Ticket-sellers	255 00
Labor, sweepers, etc	429 07
Awarding Committee	361 00
Assistant Superintendents	303 50
Straw	159 64
Fuel	82 00
Gas	73 60
Music	144 00
Badges and ribbon	18 00
Decoration	46 75
Sprinkling	12 00
Extras and supplies	81 74
Closets	30 00
Incidentals	92 78

STATEMENT—CURRENT EXPENSES—Continued.

Rebates	\$110 23
Specialities	524 67
Woman's Department	381 23
Total	<u>\$3,812 96</u>

PREMIUM AWARDS.

Horses, mules, etc	\$3,339 00
Cattle	2,304 00
Sheep	678 00
Hogs	856 00
Poultry	326 00
Total live stock.	<u>\$7,503 00</u>
Agricultural, grain, etc	\$433 00
Horticultural	885 00
Geology and Natural History	132 00
Total	<u>1,450 00</u>
Woman's Department.	\$548 00
Children's Department	80 00
Total	<u>628 00</u>
Total premium awards.	<u>\$9,581 00</u>

RECAPITULATION.

General expenses	\$9,243 53
Construction and repairs	5,704 82
Expense of Fair	3,812 96
Total	<u>\$18,761 31</u>
Premium awards.	9,581 00
Balance in treasury.	9,215 13
Season's operation	<u>\$37,557 44</u>

STATE FAIR—INCLUSIVE.

RECEIPTS.

Admission tickets.	\$21,918 05
Entry fees, speed	730 00
Rents, stall, pens, privilege and ground	4,210 38
Total	<u>\$26,858 43</u>

EXPENDITURES.

Members per diem and mileage (season).	\$1,389 25
Salaries of Secretary, Treasurer and General Superintendent.	1,850 00
Printing and advertising	1,237 89
Postage and stationery	422 54
Express, telegrams, litigation	478 95
Current expenses of Fair	3,812 96
Twenty per cent. of construction.	1,140 96
Premium awards.	9,581 00
Total	<u>\$19,913 55</u>
Net proceeds of Fair	6,944 88
Total	<u><u>\$26,858 43</u></u>

The above estimate is based on the calculation of twenty per cent. of the cost of improvements, as all of that outlay is for a class of building of permanent character, to be used for future fairs. The additional eighty per cent. is in the nature of capital invested. To add all the cost of construction account the past season to this one fair would reduce the net profit to \$2,382.27.

INSURANCE.

The insurance on the Fair ground buildings at present, is as follows:

On the Exposition building, fire	\$28,000 00
On the Exposition building, tornado	2,000 00
On stables, east side, fire.	800 00
On stables, north and west side, fire	2,500 00
On Amphitheater, fire	500 00
On Amphitheater, tornado	1,000 00
On Agricultural implement hall.	500 00
On dwelling house	400 00
Total	<u><u>\$35,700 00</u></u>

The above insurance is divided among twenty-three companies, at the rates of one and one-quarter per cent. on the main building, and one and a half per cent. on the stables and other buildings, and one-half per cent. on the dwelling house.

GEOLOGICAL DEPARTMENT.

1883.

RECEIPTS.

January. In treasury \$322 70

DISBURSEMENTS.

Order No. 1. Cleaning and labeling cabinet	\$106 75	
Order No. 2. Cleaning and labeling cabinet	71 05	
Order No. 3. Cleaning and labeling cabinet	67 35	
Order No. 4. Cleaning and labeling cabinet	67 50	
		\$312 65
Balance in treasury.		10 05
Total		\$322 70

Premiums of the State Fair, 1883.

DIVISION.	ENTRIES.	OFFERED.	AWARDED.
Horses	300	\$1,823 00	\$1,630 00
Speed	40	1,575 00	1,575 00
Jacks, etc.	23	236 00	134 00
Cattle	291	2,974 00	2,304 00
Hogs	352	928 00	856 00
Sheep	261	683 00	678 00
Poultry	300	360 00	326 00
Farm and garden products	689	481 00	433 00
Horticultural products	234	925 00	885 00
Ladies' Department	1,223	798 00	628 00
Geological and Natural History	57	146 00	132 00

Diplomas.

DIVISION:	OFFERED.	AWARDED.
Agricultural	10	1
Horticultural	12	10
Geology and Natural History	20	9
Ladies' Department	14	8

Statement of Comparative Entries.

DIVISON.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
Live Stock.	1,229	1,453	1,347	918	1,404	1,419	1,524	1,382	1,328	1,476	1,566
Agricultural.	419	494	392	309	560	625	462	381	534	483	689
Horticultural.	169	291	260	94	116	159	143	130	134	153	234
Textile fabrics	523	361	345	212	471	906	1,230	1,063	980	1,081	1,223
Total No. entries	2,340	2,599	2,344	1,633	2,551	3,109	3,359	2,956	2,976	3,193	3,712

NOTE.—No entries in the Mechanical Department are included in the above, as there were no premiums offered of late years in that department. It was estimated that about twenty-five hundred articles were exhibited by five hundred exhibitors.

Statement of Comparative Receipts during State Fair Weeks.

For 1876	\$ 6,342 70
For 1877	11,511 00
For 1878	15,991 33
For 1879	22,915 50
For 1880	18,809 05
For 1881	20,087 00
Nor 1882	25,631 10
For 1883	26,858 43

The condition of the bonded indebtedness and the claims arising from the guarantee fund remain the same as at the last report one year ago, as follows: There are outstanding forty bonds of the Board of \$1,000 each, bearing six per cent. per annum, due in three years, but subject to a call by agreement, and \$13,000 of the original \$58,000 guarantee assessment received on notes is yet unpaid.

The season's operations have been very satisfactory, and a general increase in all cases. The receipts of the Fair were \$1,227.33 in excess of the Fair of 1882, without much increase in the expenses, except in the improvement account.

The advertising was more extensive than ever before, and we can say, without fear of successful contradiction, that we had the best advertised State Fair in the whole country.

The crop reports, as a whole, show an average season; the grass and root crops were unusually fine. The most serious drawback has been the inferior corn crop, as damaged by the early frost, and loss by overflow on low lands. We are promised a full report of the crops from the Bureau of Statistics for the published Annual Agricultural Report.

Our last published report has been a success for the purpose for which it is intended, as demonstrated by the many favorable notices from the agricultural press, and the increased demand for them from far and near.

The connection of the Board of Agriculture with the State industrial associations has proved to be advantageous to all concerned, and we hope to see such connections encouraged in every way.

There are several important matters pending for your consideration, which will no doubt be referred to by the President and Superintendents, therefore I will avoid any repetition of such at present.

A proper acknowledgement is due to the officials of the railroads and express companies. All contributed to our success by repeated favors. Also, the press of the city and State, whose aid is indispensable to make a successful fair.

Again am I admonished, in closing the report of another year, to express my sincere thanks for courtesies, kind words and earnest encouragement received from those with whom I have been associated, thus turning labor into pleasure.

Respectfully submitted,

ALEX. HERON,
Secretary.

January 1, 1884.

TREASURER'S REPORT.

INDIANAPOLIS, IND., Jan. 1, 1884.

Mr. President and Gentlemen:

I have the honor to submit the following report as Treasurer of the Indiana State Board of Agriculture for the year ending December 31, 1883:

Receipts.

To cash on hand January 1, 1883	\$4,609 39
To receipts from all sources during the year.	40,678 05
Total receipts	\$45,287 44
By State Fair tickets returned	7,730 00
Total actual receipts	\$37,557 44

Disbursements.

By general and premium orders paid	\$28,399 02
Notes on hand for real estate sold	1,900 00
Cash on hand.	7,258 42
Total	\$37,557 44

GEOLOGICAL FUND.

To cash on hand January 1, 1883.	\$307 70
Orders transfered to general fund	15 00
Total	\$322 70
By orders paid during the year.	312 65
Cash on hand	\$10 05

Respectfully submitted,

J. A. WILDMAN, Treasurer.

GENERAL SUPERINTENDENT'S REPORT.

Mr. President, and Members of the Indiana State Board of Agriculture:

I am glad to congratulate you on the great success of the last State Fair, and of the general prosperity of the interests in your charge. Of the matters under my supervision, I am happy to be able to say that the old delapidated sheds, dignified with the name of cattle stalls, and hog and sheep pens have all disappeared, "the ground which knew them once shall know them no more."

In accordance with the recommendation of the report of the Committee on Fair Grounds, at your January meeting of last year, the committee having the matter in charge gave a careful consideration to the different plans proposed for new hog and sheep pens, and adopted one, which, when carried out in construction, has given general satisfaction, being pronounced by exhibitors as a *model* for the comfort of stock, convenience for exhibition, and the facility to visitors for seeing the same in comfort, being under shade and shelter from rain. They are light, airy, ornamental, and at the same time substantial, being built of durable lumber, and roofed with first-class shingles. There were 168 hog pens, and 136 sheep pens built, which will accommodate on an average, four animals to each pen. The hog pens are floored, the floors so constructed as when not in use to be raised up on end, or laid across the top of the pens, thus preserving them from decay. In addition to the cattle stalls built last year, 1882, the old horse stalls at the northwest corner of the grounds were removed, and new cattle stalls to the number of fifty, built along the west and north lines. Nearly all the hog and sheep pens were filled, and it became necessary to build some fifty temporary stalls in addition for cattle. In addition to this Mr. Hasselman, of this city, built at his own expense a spacious and convenient building for the exhibition of his fine herd of Jerseys.

At the commencement of the Fair there was a great desire expressed by exhibitors of horses to whom were allotted the open stalls at the north end of the grounds to have doors placed on them, and double doors opening inward, were placed on as many as time would permit.

Besides the improvements in the Stock Departments quite an amount of repairs were done in the Exposition building to floors, etc.

In Outdoor Implement Department, two spacious and handsome buildings were erected by exhibitors this season, and there are already inquiries for space to build more the coming year.

As to the magnitude and general success of the Fair you have heard from the President, as also his suggestions as to the future, and the members superintending the different departments will give you detailed reports of the divisions under their special charge.

In this connection I would repeat the suggestions of my last report, that members superintending departments be on the ground the first preparation day and take charge of their departments. They will thus become acquainted with the wants and wishes of exhibitors and be better able to satisfy them.

With no desire to offer unasked advice, I will risk suggesting that successful fairs depend on exhibitors as well as visitors, that without exhibitors visitors will be few, and that to encourage as many exhibitors as possible they should be treated with all the liberality consistent with justice to others, and the importance and expense of their exhibit, and its probable profit to themselves, and as ameliorating to some extent their expense, I would suggest that a per centage of the amount paid by stockmen for stall and pen rent be returned them in admission tickets for themselves and assistants.

Respectfully submitted,

FIELDING BEELER,
General Superintendent.

Each of the above reports were referred to the Committee on Finance.

HORSE DEPARTMENT.

W. A. BANKS, SUPERINTENDENT.

GENTLEMEN—In submitting this, my report of the Horse Department, I have the pleasure of reporting that the show of horses was very large:

In Books 1 and 2, heavy draft, there were Normans eleven entries, Clydesdale twenty-nine, grade forty-three; total, eighty-three, against fifty-five last year, and forty-eight year before last, showing a gradual increase.

The show was good, consisting principally of Normans, Clydesdales, and their crosses, making a fine display, and the awards satisfactory. Our State is fast advancing to the front in importing and breeding this much-needed breed of horses.

In Book 3, general purpose horses, the entries were sixty-eight, against seventy-five last year. The show was good and competition close.

In Book 4, light harness, sixty-eight entries against forty-seven last year, and fifty-five year before. The show of light harness was good, and so closely contested that the judges had to consume a good deal of time in making the awards. This ring was too good to show without a crowd, as, according to the programme, it had to be shown on Tuesday forenoon, which I think was a mistake.

In Book 5, sweepstakes, were seventy-seven entries, against fifty-five last year, and fifty-eight year before last. Sweepstakes being this year divided in two classes, I think, gave universal satisfaction, and is far better than having heavy draft and light harness competing in same ring.

Book 6, speed ring, forty entries, against forty-one last year, and thirty-six the year previous. Races were good, and classes all filled, except the first race, which was a great improvement over last year.

In Book 7, jacks and mules, were thirteen entries against nineteen last year.

In Book 8, sweepstakes, eight entries, against thirteen last year, making a total of all entries in this department of three hundred and fifty-seven, against three hundred and ten last year, and three hundred and fourteen in 1881, an increase of forty-seven over last year, with our stalls all full, and no complaints where we had doors to the stalls, which I am happy to say ornaments nearly all of the stalls, and should be to all by another fair. The only suggestion I have to make is that the speed ring should be separated from the General Horse Department, and given to a separate superintendent, which would give the Horse Superintendent more time to devote to his department, as it is too much labor for one superintendent to attend both in a limited time.

CATTLE DEPARTMENT.

S. W. DUNGAN, SUPERINTENDENT.

Mr. President—We do not wish to be considered extravagant in the use of superlatives, in saying that the cattle show at our recent State Fair was the largest, grandest and most attractive of any former Indiana exhibition. At our State Fair in 1880 there were 173 entries; in 1881, 184; in 1882, 201, and in 1883, 278. All the stalls, including fifty-six temporary ones, which were built the week preceding the fair were occupied; and had it not been that Mr. Hasselman, our wide awake and enterprising Jersey cattle man, built a house (which, by the way, is a thing of beauty) for the accommodation of his own large herd, we would have been under the necessity of building many more stalls. All praise is due to him for his liberality and timely efforts in our behalf. The different breeds of cattle were well represented, and those that lacked in numbers more than made up in quality—we refer here especially to Herefords and Polled Angus. Of the latter, there were only eight head, but were certainly very rare and superb specimens of this comparatively new and popular breed of beef cattle. They attracted much attention and admiration, and as their stalls were near my headquarters, it was not uncommon, especially of crowded days, to hear groups of ladies, curious for information, accost the herdsman in this wise: "What kind of cattle are these?" "Where did they come from?" "Oh! ain't they black?" "What are they good for?" "Poor things! How did they lose their horns?" The herdsman was a patient, good-

natured, jolly Scotchman, and seemed to be equal to the emergency. Did not hear his answer in relation to the horns, but suppose it was satisfactory. We predict that these cattle will be much more common and better known in the near future. This herd of cattle is owned and were recently imported by Fletcher, Holt & Co., of this city. The same parties had on exhibition five head of very superior Herefords. These two herds, and their product, will doubtless be heard from again. Of the well-known and famous breed of Short Horns, there were sixty-six head; thirty-three from Indiana, twenty-one from Illinois, two from Kentucky and ten from Ohio. We do not desire to be *too personal*, but want to say that the inimitable herd belonging to Thomas Wilhoit, of Indiana, took a great many ribbons, and the most of *them* were of a red color. In Kentucky show rings, this color is not so desirable, but in Indiana it is prized very highly. In the herd show of this breed, there were twenty-eight head, and it was not uncommon to hear old breeders of Short Horn cattle and fair-going men to observe that it was the best show of cattle they had ever witnessed. The strongest competition throughout the classes and herds was between Mr. Pickerel, of Illinois, and Wilhoit, of Indiana.

The Short Horns, Herefords, and Polls are the rival beef breeds of to-day, and the competition between these breeds is so close, and their merits so great, that they all have their admirers, and will continue to be general favorites.

Of Holsteins, there were thirty-two head, most all imported. There seems to be a widespread and growing interest in this new breed of cattle, and owing to their desirable qualities, as milk and dairy cattle, are gaining friends very rapidly. By the way, this breed of cattle took first herd prize for milk, in competition with eight or ten other herds. J. W. Stillwell, of Troy, Ohio, (who recently paid \$5,000 for a Holstein bull,) and W. O. Jackson, of South Bend, Ind., were the owners and exhibitors of these cattle.

Of the beautiful, neat, and fawn-like Jerseys, there were 124 head, all from our own State, and many of them imported animals, of high merit as butter-makers. Predictions have been flying thick and fast through the air for some time past, that the Jersey boom or bubble would soon burst, but the result of last year's sales is not by any means a fulfilment of these prophesies. We would therefore say to every intelligent, careful Jersey breeder, "go on," and raise as many *good* Jerseys as you can—somebody will buy them at remunerative prices—and as long as pure, rich, golden, gilt-edged butter is in demand, that long will the cow that produces it be in demand. The principle exhibitors were Churchman and Jackson, Raub, and W. J. Hasselman, of Marion county; Conner & Conner, of Wabash county, and W. E. Higgins, of Shelby county.

Wm. Fairweather, of Pennsylvania, exhibited fourteen head of Ayrshire cattle. We were not so favorably impressed with this breed of cattle, but presume they, like all other breeds, have their admirers. There were twenty-four head of Devons on exhibition—all good ones. We believe these cattle are prized both for their milk and beef qualities. The exhibitors of this breed were J. J. Scarf, Earl & York, of Ohio, and W. E. Higgins, of Indiana.

We were exceedingly fortunate in securing the services of competent, critical and impartial awarding committeemen. In many classes the show was large, and com-

petition very close, in some instances requiring nearly an hour to decide where the ribbons should go. In closing our brief report, we would recommend to the favorable consideration of the Board the propriety of commencing the examination of stock, and awarding premiums as early in the week as possible, so as to get through at least by noon, Thursday. As a general rule exhibitors take stock to the fairs with a view of advertising and selling. It is also true that many persons go to our fairs for the purpose of buying. Now, if we could get through with the examination of our stock before the crowded days, which usually are Thursday and Friday it would give exhibitors ample time to talk with parties desiring to purchase, and also be able to impart information to the admirers of their exhibits. Otherwise, they are so busy grooming, or seeing that their stock is in proper shape for the show ring, that they have little or no time for other business. Again, we found it almost impossible on the afternoons of Thursday and Friday of our late fair to get our cattle to the show ring, owing to the races; hence, we were compelled to make some of our best exhibits in front of the cattle stalls. We hope to see this suggestion adopted, not only in the live stock, but all other departments, and then exhibitors, committeemen, department superintendents, will all have a little time for social greetings and converse with friends, which is a feature of our fairs, that should not by any means be ignored. Hon. A. M. Garland recommends to the States in a recent letter to the Breeders' Gazette, a regulation adopted at the fairs in New South Wales, Australia, where he has been traveling for some time past. It is the awarding of prizes before the gates are thrown open to the public. While I am not now prepared to indorse this at our own fairs, I do think the earlier in the week we make our awards, the better.

We can not, in justice to our feelings, close this report without expressing our kindest obligations to the exhibitors in our department for the deference and courtesy extended to the awarding committees and their Department Superintendent, always meeting defeat and victory with grace, and commendable civility.

Will close, hoping these gentlemanly and courteous exhibitors will continue to attend our annual fairs, and that the Indiana State Fair of 1884 will be a grand success in all its departments.

SHEEP DEPARTMENT.

J. N. DAVIDSON, SUPERINTENDENT.

The exhibit in the Sheep Department for 1883 was, perhaps, not as large in numbers as shown at some former fairs, but certainly excelled in quality.

The new pens, the admiration of exhibitor and visitor alike, proved to be adequate for all entries, and room to spare.

Nearly all the breeds named in the list were represented. Of fine wools, including French and Spanish Merinos, there were one hundred and eighteen head;

of long wools, including Cotswolds and Leicesters, thirty-nine head; of South Downs, eighty-seven head; of Shropshire and Oxford Downs, one hundred and three head, making a total of three hundred and forty-seven.

There were eighty-two entries from Indiana, sixty-four from Ohio, sixty-four from Kentucky and twenty-three from Illinois.

On Wednesday, thirty-five head of Shropshire Downs, imported by Mr. Banks, came in travel-stained and weary, after ten days in quarantine; yet, withal, received their full share of attention.

The expert system is, no doubt, the best for the management and exhibiter; but the man for the place is found wanting. Our experience is that a man can breed up in sheep lore better than read up, and there are very few wool growers who succeed with more than one breed at a time.

The expert in the fine wools was critical in his examinations, and prompt in his decisions. Although every inch of the ground was contested from the beginning to the end, he succeeded in giving general satisfaction.

In the middle and long wools, with three judges, the contest was often very close. The excitement ran so high with exhibitors and visitors, that in order to give the judges room, we stretched ropes at each entrance of the hallway, and showed in the building.

The premium list in this department gave general satisfaction, except where animals were required to show in sweepstakes out of their class. Therefore we would recommend that (while it may not be prudent to raise the premiums in this department) that a grade of premiums should be offered in sweepstakes in their several classes.

We are glad to state that the best of feeling and harmony prevailed during the entire week. Many of the exhibitors complimented the management, and expressed a determination to attend the fair of 1884. In conclusion—to the Secretary, his assistants, and members of the Board generally—we wish to return our thanks for the kindness and courtesy they saw proper to extend to the Superintendent of this department.

HOG DEPARTMENT.

DICK JONES, SUPERINTENDENT.

Mr. President—In submitting this, my report of the Swine Department for 1883, it is very gratifying to know that, although the price of hogs was very low, the show was grand, perhaps never excelled on the Indiana State Fair Grounds, as the following entries will show:

Book 22—Berkshires	57 entries.
Book 23—Poland China	139 entries.
Book 24—All other large breeds	36 entries.
Book 25—Suffolks, Essex and other small breeds	25 entries.
Book 26—Sweepstakes	75 entries.
Total entries	332

The exhibitors were from Indiana and Ohio, and, while the competition was spirited, the best of feeling prevailed. The committees did their duty nobly, and with great care, believing it was their duty to award to the best animal regardless of whom it belonged to.

The new pens gave general satisfaction, and exhibitors were highly pleased with their excellent quarters.

We would suggest that the halls be graveled to prevent mud or dust, and that sliding gates be placed at each hall, to be closed while the committees are examining the different classes.

POULTRY DEPARTMENT.

T. W. W. SUNMAN, SUPERINTENDENT.

Mr. President—As Superintendent of the Poultry Department, I have the pleasure to report that at the Fair of 1883 this department was better occupied than it has been for several years, the coops being almost all filled with choice representatives of the different classes of land and water fowls, from the diminutive Bantam to the mammoth turkey. To enumerate each class and name the exhibitors would require too much space and time. Messrs. Worst & Sites, of Ohio, showed a good number of all the different classes, including among them some large capons, being probably the first exhibited in the State. They were large and fat, but had a dull and stupid appearance.

Heretofore we have rented coops belonging to the Indiana Poultry Association. They rent them to us, or rather to our exhibitors. The Poultry Association hold an exhibition during the winter in Indianapolis; and in moving coops from the city to the Fair grounds they are more or less broken. We are expected to repair them, which we have always done; and I would recommend that we buy our own coops, for the expense of moving and repairing those rented coops would more than pay the interest on the money invested in them.

The list of prizes offered is not as full and complete as might be, and I recommend that a large number of fowls entered in the non-enumerated list be entered on the regular list.

The hall in which the poultry was exhibited was not as well lighted as desired, and I would recommend that, should the same hall be used for poultry again, that a large opening be made in each side to admit light and air.

AGRICULTURAL DEPARTMENT.

H. LATOURETTE, SUPERINTENDENT.

Mr. President—As Superintendent of the Department of Agriculture, I submit the following report:

The exhibition in this department could scarcely have been better. Although the crop of cereals this year in Indiana was not a good one, yet, judging from the display in this line of the most valuable products, one would come to the conclusion that Indiana had been blessed more abundantly and with better qualities than ever before. The samples of wheat and corn on exhibition, especially, these two great staples of our State were in quality, up to the standard of excellence. The wheat exhibit comprised a larger number of varieties than usual. In vegetables, potatoes were in the lead, many varieties of both early and late were on exhibition, and it was difficult to discriminate in favor of any one variety, as new names are added to the list every year, and Indiana now ranks among the foremost States in the production of this staple.

The display of cabbage of numerous varieties could not fail to attract the attention of visitors, in spite of the drouth and the ravages of the worms, this season, throughout the State. The display of this vegetable was the admiration of all visitors.

The exhibit of other vegetables, such as turnips, parsnips, rutabagas and many others, were all up to the standard if not better than former years.

The whole exhibition proves that Indiana is of one the best States in the production of all the grains and all the varieties of vegetables known to our climate.

MECHANICAL DEPARTMENT.

R. M. LOCKHART AND W. W. COTTERAL, SUPERINTENDENTS.

Mr. President—As Superintendents of the Mechanical Department at the State Fair of 1883 it becomes my duty to render to you a report of the same. I feel somewhat embarrassed in attempting to render an account of my stewardship for the reason that of all the departments at our last State Fair ours was the only one that was denounced by certain papers in this city as a failure. I shall beg the privilege of briefly reviewing that department for a few years, and say that since I became a member of the State Board I have had charge of that department for six years.

When I first took the management of this department, the only place occupied

by machinery was the west end of the Exposition Building and old Power Hall at the northwest corner of the building, with a line of shaft of less than one hundred feet in length. After remaining there for two Fairs I had the machinery moved up near the grand stand for two years. The Board was all this time paying premiums on machinery. I, with others, advised the Board to drop the premiums on machinery, and, instead, give that department better facilities for showing their goods. The next year, with the consent of the Board, I built the machinery hall, 30 by 150 feet, with line of shafting in the center, allowing machinery to be attached to either side. The Board at that Fair made arrangements to admit all exhibitors and their help free in the department, where no cash premiums were awarded. The result was that more machinery came on the grounds than could be accommodated with power to run them. The following year I was ordered by the Board to erect additional buildings, which was done, and two more halls were erected, one thirty feet and the other forty feet in width, and each of them one hundred and fifty feet in length. All of this space was allotted to exhibitors, and still there was not enough space to accommodate all who came. Arrangements were then made by the Board to move out of the way some of the society buildings and allow some of the larger exhibitors to erect buildings of their own in which they could make their display. Each succeeding year the Board has given up its valuable grounds to such parties as desired to erect buildings until almost every available spot on the grounds has been covered. At the Fair of 1883 there was almost eight acres of ground densely packed with machinery, and I say, without fear of successful contradiction, that it was the grandest show of farm implements ever seen at any fair in the United States, not excepting the St. Louis fair.

The Board has endeavored to do everything in its power to aid the exhibitors in the Mechanical Department to make a successful exhibit of their goods, and it has been the intention of the Board to give to every exhibitor in that department, that was entitled to the same by the Rules of the Board, a free ticket or pass, and also single day tickets to each one of their helpers actually needed to aid them in making a proper display of their goods. But I am sorry to have to say that this grant on the part of the Board has been greatly abused, many tickets having been drawn by men claiming them on the grounds of needing them for their assistants, and after procuring them, giving to parties in no way entitled to any courtesies of the Board, or sold them to innocent purchasers to be used to gain admission to the grounds. I am glad to be able to say that the representatives of all the leading manufactories of this and other States have never given your Department Superintendents any trouble in this way. Such firms as Sinker, Davis & Co., Atlas Works, Eagle Works, Chandler & Taylor, the Vinton Iron Works, of this city; the Studebaker Brothers, Oliver Chilled Plow Co., South Bend Plow Co., and the Birdsell Co., of South Bend, and many others I could name, have been always represented by gentlemen, and when complaints were made during our last Fair, many of these men came to me to say that they wished it to be distinctly understood that they had no cause of complaint, and thought the Board were doing everything in their power to make their department a success.

I was fortunate last fall in having with me in the management of that department, Mr. Cotteral, the new member from Henry county. He is a thorough busi-

ness man. With his assistance a record was kept of all the firms and individuals applying for tickets, and also the names of their assistants. Each individual applying for tickets was handed by Mr. Cotteral a blank application and asked to fill it out with the names of the men they wished to have admitted as their helpers, and also signed by them showing the names of the firms they were representing. We can say to this Board that but very few men applying for tickets objected to this precaution on the part of the Board, and the result of this course is very gratifying to us as it reduced the number of tickets given out from the previous year by several hundred. We can say to this Board that the only class of men that we found to object to this manner of disposing of the tickets were those that are trying to handle everybody's machinery, and thought the Board should permit them to bring on to the grounds every other man that was handling the same line of goods in the State, that happened to come to our Fair. In conclusion we are happy to say that the dissatisfied men in this department were very few, and not of a very dangerous connection. We would make the suggestion that the Board set a time when the gates will be positively closed at each Fair against the admission of machinery. As it has been for the past few years, machinery has been coming on to the grounds up to the last day of the Fair, and if the late comers are not provided with as good accommodations as those that came before the commencement of the Fair, they are inclined to censure the management.

We wish to return to Mr. Charles Merrifield, of this city, for the very able assistance rendered us, and to whom may be credited the hard work of locating the bulk of the machinery on the grounds, our most hearty thanks. He has the confidence of every exhibiter, and any arrangements made by him seemed to be satisfactory to them.

Respectfully submitted,

R. M. LOCKHART,
W. W. COTTERAL,
Superintendents.

CARRIAGES, WAGONS AND FURNITURE.

JOHN RATLIFF, SUPERINTENDENT.

The department assigned to me was Carriages, Wagons, and all exhibits on the lower floor of the Exposition building.

The gentleman to whom was assigned the Department of Furniture and all exhibits on the upper floor of Exposition building, not being present, that department was also assigned to me.

On arriving Monday, the first day of the fair, I found the building had all been spaced and assigned to exhibitors by Mr. Hargrove, the Superintendent of Space, and the articles for exhibition were being speedily arranged by his assistant, Mr. Watson, and the exhibitors.

By the rules of the Board, exhibitors in the Mechanical and Art Departments whose goods on exhibition amounted to the value of \$25 were entitled to exhibition tickets free of charge for themselves and their assistants actually necessary to enable them to display their goods; and these tickets were to be issued at the discretion of the Department Superintendent. The plan adopted by the Board of charging nothing for the space assigned exhibitors of goods in these departments and granting free admission to such exhibitors who make their displays also free of charge, brings a large display in these departments.

Both floors of the Exposition building were crowded to their capacity, leaving space only for the convenience of spectators.

Articles were on exhibition from almost all parts of the United States; as far East as Vermont, and as far West as California; as far north as Michigan, and as far South as Georgia.

As the merits of articles exhibited in these departments are written up by expert judges for publication in the annual reports, it is no part of our business to speak of their merits in detail, but would state in general terms that the display throughout the entire building was good, and gave general satisfaction, so far as our knowledge extends.

There was a general good feeling among exhibitors and between exhibitors and the Board, although there were a few cases of dissatisfaction in the facilities afforded them. It is, however, but justice to exhibitors in these departments, both from our own State and also from other States, to state that we were much pleased with the courtesy extended by them to your Superintendent of these departments, and the general good feeling manifested toward the Board.

The practice of making the Department Superintendent the sole judge of the free ticket system to exhibitors is attended with some embarrassment to both superintendent and exhibitor. The Superintendent may err by being too liberal with free tickets, to the injury of the State Fair Association; or he may be too parsimonious for the convenience and comfort of the exhibitor. To avoid either extreme, I would suggest that the Department Superintendents who have charge of no premium departments be on the ground when space is assigned, and that the Superintendent of Space, the Superintendent of the department and exhibitor agree as to the number of tickets necessary for the particular exhibit, and that they be issued accordingly, unless good reasons be assigned for a variation from the agreement. These suggestions are made not merely to protect the Board at the expense of the exhibitor, but to suggest some plan that will protect the Board and relieve also the exhibitor and facilitate his work.

A general survey of the various displays in the building measurably relieves the superintendent of these departments of any apprehensions he may have entertained that the Board was being imposed upon by the issuing of exhibitors' tickets. Exhibitors required from one to twenty-five tickets daily to carry on their displays. A personal examination at different times revealed the fact that in almost every case the number of hands for whom tickets had been issued were faithfully at work to make their respective displays both entertaining to the public and profitable to themselves.

TEXTILE FABRICS.

MARY E. HAGGART, SUPERINTENDENT.

The whole number of entries made in the Woman's Department for the exhibit of 1883, were 1,223, being forty-seven over the number made the year preceding. The rule to exclude all articles that had heretofore drawn two or more premiums was most rigidly enforced.

The amount offered for premiums was \$798; and the amount paid out for premiums was \$628. Current expenses were \$381.

This last exhibit in this department excelled by far any former display of the kind. The articles entered were of a superior quality, and the major portion of them made within the year of the fair. We have found that the rule to exclude articles that have drawn two or more premiums takes wonderfully well with the visitors to the fair. The common expression is one of satisfaction at not being compelled to look at the same "old show."

The art exhibit in this department was truly excellent in quality, and in a certain sense immense in quantity. The superior quality of this display was principally due to the untiring efforts of Mrs. A. M. Noe. By her personal solicitation and supervision she succeeded in making the Art Exhibit of the Woman's Department one of the very finest features of the State Fair.

The arrangement of articles in booths, in their order and according to the books as numbered, was perfect and so systematized that only one-half of the time usually required, was taken by our committees in making their awards.

To be brief, the entire exhibit of the Woman's Department for 1883, surpassed in every way any former display brought out under the management of the Woman's State Fair Association.

HORTICULTURAL DEPARTMENT.

JOHN M. GRAHAM, SUPERINTENDENT.

Mr. President—The last State Fair was made very attractive by the floral display in the Exposition hall, the fruit being exhibited on the upper floor in the center of the building. The place was one of the best locations in the building. The display of apples was unusually fine as well as a large collection of the different kinds of fruits. There were apples, pears, peaches, quinces, grapes, and several varieties of melons, some choice ones, many looked well, but not well flavored.

The State Horticultural Society of Kansas made a very large display at our

fair of the finest apples and pears that I ever saw, but did not compete for premiums; only had their fruits on exhibition to advertise the State as a fruit State.

I now will give the names of fruit that took the premium, believing it will be useful as well as interesting to the fruit growers of our State. The list of twenty varieties are as follows: Black, Western Beauty, Baldwin, Smith's Cider, Maiden's Blush, Vandever Pippin, Winter Maiden's Blush, Jeanette, Cayuga Red Streak, Ben Davis, Black Sweet, Prun Red, Tulpehocken, Yellow Bellflower, King of Tompkins County, Rhode Island Greening, Roxbery Russett, Hoop, Black Gilflower.

The list of twelve varieties are Smith's Cider, King of Tompkins County, Rambo, Yellow Bellflower, Cayuga Red Streak, White Pippin, Black Delroth, Baldwin, Fall Wine, Northern Spy, Winter Maiden's Blush, Maiden's Blush.

Six varieties, Northern Spy, Maiden's Blush, Rambo, Baldwins, Ben Davis, White Pippin.

Four varieties of pears are Seckel, Sheldon, Dutch, White Doyenne.

The floral display was a very large and very fine collection of flowers and funeral designs, the finest ever shown at our State fair, brought out by the large premiums offered, therefore I would recommend that another year the premiums be made large so that we may be assured of another fine display.

GEOLOGY, NATURAL HISTORY, ETC.

FLETCHER M. NOE, SUPERINTENDENT.

The exhibit in the Department of Geology and Natural History, for 1883, was without doubt the largest and most attractive display of the kind ever seen at the Indiana State Fair.

The following table will show the growth of this department in the last six years:

In 1878 the exhibitors numbered.	3
In 1879 the exhibitors numbered.	14
In 1880 the exhibitors numbered.	20
In 1881 the exhibitors numbered.	26
In 1882 the exhibitors numbered.	29
In 1883 the exhibitors numbered.	51

This year's exhibit was made up from private collections, there being nothing exhibited by the State, except the gigantic walrus, which was presented to Prof. Collett by Dr. Allen, of the Surgical Institute, and which was fully described in last year's report.

Prof. G. K. Green, of New Albany, Indiana, showed a fine collection of fossils, and Indian relics, all of which he has collected himself. Among the Indian relics

he shows some very rare specimens of bone fish hooks, awls and beads. Collections of Indian relics, minerals and fossils were also shown by John Marvel, of Royaltown, Indiana, and Fletcher M. Noe.

There were seven (7) entries for the premiums offered on the best collection of American woods. All the collections entered were very fine.

That of G. W. Putterbaugh, of Greenfield, Indiana, consisted of a specimen of nearly every kind of wood in the State; the pieces were cut to a uniform size, polished, varnished and labelled with the common and scientific name and locality. They made a very fine display. The entire collection was donated to the State Museum at the close of the Fair.

Nearly every person has, at some time in his life, put away an old or curious coin as a "pocket piece," which he has carefully preserved and cared for for many long years. These persons (and not a few were there) could be seen at all hours in the day at the large coin collection of Mr. Louis Woerner, of this city, eagerly scanning its large number of specimens, in hopes of finding one like the one he was carrying for a pocket piece. A coin collection always attracts attention, and the one mentioned, the face value of which is upwards of \$1,000, was the center of attraction in the department.

Fletcher M. Noe also exhibited a collection of coins and currency, which contained full sets of one, two and five cent pieces.

The High School pupils of this city made an excellent display of botanical specimens.

Frank Briedermeister, Ralph Perry and Fletcher M. Noe exhibited collections of butterflies, moth and insects, aggregating 1,700 specimens, most of which were collected near the city. They were nicely mounted and well named.

Ralph Perry also shows 110 skins of Indiana birds, and Fletcher M. Noe shows sixty skins of English and East Indiana birds.

A very rare and interesting relic of the late war was exhibited by Mr. Charles Osborn, of this city. It was a map of "Camp Morton," drawn by a rebel prisoner, when it was used as a prison in January, 1865. It is very complete, being drawn to a scale and showing every detail of the camp.

Mrs. W. S. Laughlin showed an old paper printed in 1812, and Dr. S. M. White a bomb shell picked up on the battle field of Stone River July 4, 1864.

Prof. G. K. Green also exhibited a number of war relics, consisting of autograph letters, etc., of noted rebel generals.

A collection of Indiana birds and animals, mounted and in cases, and a curious monstrosity in the shape of a seven legged and two tailed sheep, was shown by Fletcher M. Noe.

The competition in the department was very close, but the awards of the committee, Prof. O. B. Hay, of Butler University, and Ernest Morris, were very satisfactory to all exhibitors.

Messrs. Cobb & Branham, of this city, made a very fine exhibit of Indiana coal. The collection was well arranged and attracted much attention. The awards on this collection were made by Prof. O. B. Hay. The natural history exhibit was

placed in very excellent light and space, and it is the wish of the exhibitors that in the future the exhibit may be shown in the same place as this year.

I think, as has been shown by the foregoing report, that good results might be obtained if proper efforts were put forth to bring out the numerous private collections of natural history specimens owned by parties in this and other cities. As it is, a great interest has been awakened among the young people of the city in the study of natural science, which has resulted in the forming of a society called the Agazzi Association, for the study of natural science, whose membership already is nearly twenty. This society is rapidly growing, and is showing great enterprise in the formation of their museum, and also in having lectures given twice a month by well-known scientists of the city. This society hopes to be able to make a very creditable display at the coming fair. With proper care and encouragement this department can soon be made one of the largest and most attractive of the fair.

GATES.

L. B. CUSTER, SUPERINTENDENT.

In the department under my direction at the last State Fair, that of the gates, everything in general passed off very well. Undoubtedly there was some slight friction, which is always the case, and can not be avoided, as in the commencement everything is in a crude condition.

I would recommend a radical change in badges of gate-keepers, police and all other employes of the Board, as it is possible for persons to gain admission on old badges who are not entitled to that privilege.

AMPHITHEATER.

B. H. HANCOCK, SUPERINTENDENT.

Mr. President—I make the following report of the amphitheater: There was \$625 worth of tickets sold, and I think \$1,000 worth of tickets could have been sold if the amphitheater had been large enough to hold the people. I would recommend that it be enlarged to accommodate all who are willing to pay for the privilege of a seat, and I think the money the extension would cost would be returned by receipts in one or two years, and would be money well invested.

Mr. Kennedy, of Montgomery, delivered his address on the "Grasses of Indiana," which, with the discussions that followed, will be found elsewhere in this report under the head of "Essays."

A vote of thanks was tendered Mr. Kennedy for his valuable paper.

On motion, the Board adjourned to 7:30 P. M.

EVENING SESSION.

President Mitchell in the chair.

Dr. W. T. Stott, of Franklin College, delivered his address on "The Relation of Farm Life to the Prosperity of the Commonwealth." He was followed by President J. H. Smart, on "The Relation of Purdue University to Rural Industries." A vote of thanks was tendered these gentlemen for their addresses, which will be found elsewhere in these pages.

Prof. Smart asked that a committee be appointed to confer with him. The following were appointed accordingly: President Smart, Mr. Lockhart, Mr. Fitch and Mr. Reiter.

On motion the Board adjourned.

SECOND DAY.

WEDNESDAY, JAN. 9, 1884, 9 o'clock.

Board met pursuant to adjournment, President Mitchell in the chair. On call of the roll thirteen members of the Board proper answered to their names. On call of the Counties, District, Township and State Associations, the delegates responded as recorded yesterday.

The minutes of yesterday read, approved and adopted.

On motion of Mr. Jones, nominations were made to fill vacancies for membership which expire at this meeting, as follows:

First District—Robert Mitchell, Gibson county; Jasper Davidson, Gibson county.

Second District—Samuel Hargrove, Pike county; Henry J. Johnson, Martin county.

Third District—J. Q. A. Sieg, Harrison county; Mr. Hancock declines.

Fourth District—W. B. Seward, Monroe county.

Eighth District—S. W. Dungan, Johnson county; Chas. E. Merrifield, Marion county.

Fourteenth District—L. B. Custer, Cass county; Joseph Rippey, Elkhart county.

Fifteenth District—W. A. Banks, Laporte county.

Sixteenth District—R. M. Lockhart, Dekalb county.

Mr. Beeler made a request that the Committee on Fair Grounds be excused to visit the grounds. Granted.

The Committee on Finance submitted their report, as follows:

To the State and Delegate Board of Agriculture:

GENTLEMEN—Your committee, to whom was referred the accounts of the Treasurer and Secretary of the State Board of Agriculture, would report that we have carefully examined the same, and compared the vouchers and receipts on file, and find the same correct, and most cheerfully commend the neat and accurate manner in which these accounts have been kept.

W. B. SEWARD,
S. W. DUNGAN,
WM. BUNYAN,
J. M. GRAHAM,
I. N. THOMPSON,
Committee.

On motion, the committee's report was received and the committee discharged.

Mr. Cotteral moved that the delegates accept the invitation to take a ride around the Belt road at 11 A. M. Carried.

The committee on the suggestions contained in the President's address as referred, reported as follows:

We fully concur in the suggestions therein, and recommend that the State Board of Agriculture hold a Fat Stock Show in Indianapolis during the month of Decem-

ber, 1884, under the auspices of the State Board, and that such prizes be offered for the different classes of fat stock as will induce stock feeders to compete at our show.

We also recommend that side-shows and games of chance be excluded from the State Fair ground.

All of which is respectfully submitted,

T. W. W. SUNMAN,

L. S. FITCH,

D. LOSTETTER,

Committee.

Mr. Beeler stated that there had been no games of chance allowed on the grounds, as intimated, for years, and Mr. Lockhart confirmed such statement during his term as Superintendent.

The report of the committee was accepted after the following

DISCUSSION:

Aaron Jones. I understand the question is on the report of the committee. If I so understand this report to favor the holding of a fat stock show, upon this question I may say a word. This recommendation I concur in; it is a step in the right direction. The management of the State Board for the past few years has given the State of Indiana a wide reputation, which is growing wider and wider from the management of this Board. Our fairs have been various in attraction, and have given us a world-wide reputation. The success of those fat stock shows at Chicago have been to them world wide in reputation. If we start in this place a fat stock show, it will serve to increase our influence and popularity. I hope that measures will be taken to bring about such an exhibition.

Thomas Nelson. I have listened to the reading of that report with a great deal of interest. However, I see one objection; it places the time in December; it is too late. It is liable to throw us into the inclement weather. I would favor just before the Kansas City Fat Stock Show.

T. W. W. Sunman. At the fat stock show at Chicago, three of the nineteen carcasses slaughtered were spoiled on account of the warm weather in November.

Mr. Mitchell. I have made it a special duty to attend these shows and see the results growing out of them. Several years ago I attended the show at Chicago. It is an exhibition of increasing advantage, as demonstrated by the sales this fall. They have seen the necessity of the step, and are reaping a rich benefit from it. In this respect Illinois stands before any State in the Union, simply because they have had forethought in this matter. Can we say this? We can take second place if we will. This State Board should step forward in the matter, for we can afford to make an exhibit as well as Chicago. We can not afford to go away from Indianapolis; we have a good location for our exhibit, and our railroad facilities are unequaled for transportation of stock. A few years ago a young heifer from Iowa exhibited at Chicago made to that State a million of dollars, simply because it gave Iowa a reputation it could not get from any other show. Let us put this fat stock show to work. I do not think we can hold it early, but can have it late. Gentlemen, this is an important question. We can grow good wheat in Indiana; it is pleasant to farm, and it is the farmer who gets good returns, but we should take all pains possible to improve and better the condition of our stock, and arrange for this exhibition. It is our duty to do so.

On motion of Mr. Hamilton, the Delegate Board authorized the State Board to hold a fat stock show in the fall and offer such premiums as they may deem prudent.

After which occurred the following

DISCUSSION.

John Sutherland. I am glad to see this feeling here in reference to Indiana, and I hope that we may succeed in this matter. In everything we do, if it is not a financial success, we look upon it as being a failure. If a minister comes among us and he fails to live up to his obligations, he is set down as a failure. There was a time here when we had an exposition. Why was it not a success? There was one at Cincinnati, Louisville and Chicago. The people of Indianapolis said they must have

one here to keep our folks from running away. We wanted to build up our own State, but what was the result? Other attractions elsewhere were so great that they overcame ours. We all went there, and we failed because Indianapolis had not the attractions to draw the exhibitors and visitors. Consequently we are left with \$40,000 indebtedness. Can we compete against the attractions thrown out by Chicago, a city of 600,000 people? I fear, gentlemen, the attractions there will shade this enterprise down if we undertake it. I have been in the habit of attending those stock shows at Chicago every year. Cattle breeders from Canada contribute to that exhibition, and the question is, will they come here, and could we keep it up and make it a credit to us?

Thomas Nelson. We want this fat stock show. Suppose it is not a financial success. Chicago had to pay deficiencies there, and Indiana can do it. If we have one fat cow or steer that will bring half a million of dollars to our State, as Iowa has done, you can afford to take it out of your receipts on hand. The resolution of the gentleman now pending just suits me exactly. I hope this show that is contemplated will be located here.

John Rattliff. I have serious doubts of the propriety of the State Board taking hold of this matter. We are in debt for those grounds, and to take this out of our treasury now I fear would not be for the best. I do not know what amount it will take, as I am not posted on that subject. I am a member of the State Board. If you instruct us to go ahead with it, I am ready to do so; but don't call us in question if we come out short.

Mr. Hamilton. We hold our State Fairs every year, but we should not quit at that; we need this fat stock show.

Mr. Hughes, of Lake county. I favor the motion for a fat stock show. Failures do not always grow out of failures. The question is: Can the stock men of Indiana afford to hold an exhibition for the purpose of showing fat stock, and by so doing give our State some praise? Generally speaking, we are a little behind the stock men of some other States. They

have not kept their interests up, and Short Horn breeders have not held together as well in Indiana as in Illinois. The State Board, with the Delegate Board, represents every county in the State, and I think this would be a move in the right direction. We can try one, and if we do not succeed we can bear the expense for once and make up the deficiency. Indiana is more of a hog-growing State; but it is also a fine State for the rearing of cattle and sheep. Illinois, Missouri and Iowa have carried off prizes at such shows as Chicago to improve their cattle. We have a grass-producing State, and we have knowledge enough as breeders that we can produce the same effect that they have done. I do not think there is one man here who is a farmer and stock breeder who will say we can afford to let this opportunity slip. We are not cut off from resources at all. Men from Ohio and Kentucky can not reach Chicago without going through Indiana, and Canada is as easily of access to us as to Chicago by rail. I do not want to do anything to cripple this Board, but I can not see anything in the way of this show. I would be glad if the State Board could take this into consideration and do what is best for the State.

The Committee on Premium List offered their report as follows:

Your Committee on Premium List report that we make no change in any of the rules, and we recommend the strict enforcement of all, and especially Rule Fifth, in regard to entries, except in Rule Tenth, we recommend that all that part of said rule after the word "addressed," in the seventh line, be stricken out, and instead insert "no privileges for the sale of liquor, games of chance, or show privileges will be sold."

We also recommend that in instructions to judges, Article Fifth, all that part after the word "classes," in the second line, be stricken out.

We recommend that premiums in Book 4, be made to correspond with Book 3, and that a separate premium be given to mares and geldings in the four-year-old and over, rings.

¶ We recommend that in the Cattle Department, Section 1, first line, the word "written" be stricken out.

We recommend that all that part in the Cattle Department relating to prizes at the fat stock show at Chicago be stricken out, on condition Indiana holds a fat stock show in the year 1884. In case Indiana does not hold a fat stock show in 1884, we recommend the duplicate of all prizes taken at Chicago by Indiana exhibitors. Respectfully submitted.

W. A. BANKS, Chairman of Committee.

Moved and seconded that the report be received and referred to the Board proper, and committee discharged. Carried.

Prof. F. A. Friedley, of New Albany, was then introduced and delivered his essay on "The Profits in Farming," which was received by a rising vote of thanks. The essay will be found elsewhere in these pages.

The Board then adjourned to accept the invitation extended by the Belt Road for an excursion and to look at the proposed location for exchange of Fair Grounds.

AFTERNOON SESSION, 3 o'clock P. M.

Board met, President Mitchell in the chair.

Mr. Lockhart moved that the thanks of the Board be tendered to the managers of the Belt Railroad for their kindness and the manner in which they entertained us. Adopted.

The Board then proceeded to the election of members of the Board proper to fill the places of members whose terms expire with this meeting, which resulted as follows :

- First District—Robert Mitchell, Gibson county.
- Second District.—Samuel Hargrove, Pike county.
- Third District—John Q. A. Seig, Harrison county.
- Fourth District—W. B. Seward, Monroe county.
- Eighth District—S. W. Dungan, Johnson county.
- Fourteenth District—L. B. Custer, Cass county.
- Fifteenth District—W. A. Banks, Laporte county.
- Sixteenth District—R. M. Lockhart, Dekalb county.

Mr. Lockhart offered the following resolution :

WHEREAS, It is a notorious fact that millions of money have been taken from Indiana and invested in what are generally known as "Margins," but only another name, in our opinion, for gambling; and,

WHEREAS, By such gambling large sums of money have been lost to the State ; Indianapolis fortunes wrecked ; homes destroyed ; the insane asylum furnished with inmates from this cause, and no return whatever, but is constantly adding sorrow and poverty, and demoralizing the youth of the State, and bringing disgrace to our citizens; therefore, be it

Resolved, That we most earnestly condemn this form of gambling which is sapping the foundation of good government, and we call upon all good citizens of the

State, and upon the press, to oppose and expose margin speculations, and we do most respectfully ask the next General Assembly of the State to pass such laws as will so far as possible suppress this vice.

Which, on motion, was received and adopted.

The Committee on Rules and Regulations of the Board reported as follows :

Mr. President—Your committee to whom was referred a revision of the Rules and Regulations of the Board, beg leave to make the following report : We have carefully examined the existing Rules and do not deem it necessary to recommend any change in the same.

R. M. LOCKHART,
Chairman of Committee.

Mrs. Adkinson, Secretary of the Woman's Department, was then introduced, and read an essay on "The Industrial Progress of Women."

On motion by Mr. Lockhart, a vote of thanks was given her for the able address, which will be found elsewhere in this report in full.

The committee on unfinished business made the following report:

We, the committee on unfinished business, after investigation, find there is nothing to report.

B. H. HANCOCK,
Chairman of Committee.

The report was received and the committee discharged.

Mr. Hancock, the retiring member of the Board, expressed his thanks and kind feeling towards the Board for the pleasant associations and respect that he had met with.

Mr. Lockhart, of the committee, said that they were not ready to make their report in regard to making any change in location of the Fair grounds; but would say the committee did not look favorably upon any change, and we think it will be better to keep what we have, work with heart and hands together, and improve that which we have.

Mr. Dungan. I concur in what Mr. Lockhart says.

Dr. Lemuel Moss, of the State University, was then introduced, and delivered his address on "The Development of the Most Precious Resources of the State." A rising vote of thanks was given him for his able address, which will be found elsewhere in these pages.

On motion the Board adjourned to 7:30 P. M.

EVENING SESSION.

8 O'CLOCK P. M.

President Mitchell in the chair.

Prof. W. C. Latta, of Purdue University, delivered his address on "The Mission and Needs of the Agricultural College." He was followed by C. R. Barnes, Professor of Botany, Purdue University, on "A Grain of Corn." A vote of thanks was tendered for each address, which will be found elsewhere in these pages.

Mr. Lockhart offered the following resolution, which was adopted after discussion:

Resolved, First, That we commend Purdue University to agriculturists of the State as an institution worthy to be patronized by those who wish to secure for their sons and daughters such a thorough scientific education as will prepare them for the active duties of life.

Resolved, Secondly, That we will do all we can to secure for the institution an adequate representation of students from our respective counties.

Resolved, Thirdly, That we will do all in our power to secure from our Legislature an adequate and permanent appropriation for the proper equipment and support of the University, to the end that it may enlarge its sphere of usefulness and increase its efficiency.

Resolved, Fourthly, That we commend the effort of the Purdue authorities to make the Indiana weather service of utility to the agriculturists of the State by causing weather signals to be displayed on railroad trains, and on public buildings throughout the State.

Resolved, Fifthly, That we recommend to each of the Agricultural Fairs of the State the idea of offering to the boys of each county, as a premium for the largest and most valuable production off of say one acre of land, a scholarship and expenses for one school year at Purdue.

Respectfully submitted,

R. M. LOCKHART,
Chairman of Committee.

REMARKS.

Prof. Smart. Not many days ago I was informed that by a reliable signal sent out from Washington, that Madison, Wisconsin, was saved from \$50,000 damage. It is quite likely, as stated by the Governor, that this science can be utilized to make it of some value to this State. Purdue University will be glad to place a signal on the side of a baggage car so those who see trains passing can each day see the prophecies indicated. This car is to run on some one of the prominent lines between Chicago and Louisville. There are very few farmers in the State who read the daily papers, and know what is going to happen as to changes in the weather. We propose to put out a large number of flags on which shall be printed signals easily interpreted and place them on railroad cars. We will furnish them to any person, school house or town, who agree to pay \$2. So if the scheme be carried out, we will have a signal on every school house, that is in reach of a telegraph station. By this means we can signal the State from one end to the other. The frost signals can be sent forty-eight hours in advance of the frost.

W. B. Seward. Many foreign countries have shut down on the importation of pork. We should try and get our Congress to see if they can be made to come to terms. Would it not be right that some expression or measures be taken to either do away with the embargo put on it, or we will fight back.

Mr. Lockhart. I agree with Mr. Seward on the points mentioned. It is one of the important points for the agriculturist to deal with. I am satisfied these restrictions have not been withdrawn, and I think it would be a good thing for us to give an expression to this subject. If they are going to rule out our pork, we can stand up and fight them, and not let them send their vile liquors into this country.

Mr. Seward. The effect of this restriction has resulted in a great loss to the United States. I am satisfied it has not been removed.

Mr. Seybold. Every nation has a right to tax exportations from other countries, but we have not a right to ignore the

right that none of their product shall be brought to this country. I think the remarks of Mr. Seward are in place. If Germany thinks it right to place a tax to compete with our pork it is well enough, but to say the pork from the United States is not healthy, that is a point on which we should meet them. Germany has never removed this restriction. The wine and liquors sent over here are worse than our pork sent to them.

Messrs. Jones, Seybold and Seward were appointed a committee to have the subject under advisement and report tomorrow.

The Board adjourned until 8:30 o'clock A. M.

THIRD DAY.

THURSDAY, Jan. 10, 1884—9:30 A. M.

Board met, with President Mitchell in the chair.

The minutes of yesterday read, approved and adopted.

The Committee on Fair Grounds made the following report:

Mr. President and Members of the Delegate Board :

Your Committee on Fair Grounds beg leave to make the following report : We visited the grounds and found everything in excellent condition. The new hog and sheep pens erected since our last annual meeting are models in their line, and an ornament to the grounds. We find near the north entrance of the Exposition building, there are indications of one or more weak sleepers ; also, leak in the roof near the tower, and a portion of roof displaced on cattle stalls Nos. 131 and 132 ; all of which we recommend be repaired.

In closing this report, we wish to heartily indorse the efficiency of Superintendent Beeler in his general management of the grounds, and the prompt manner in which he has made the necessary repairs.

All of which is respectfully submitted,

SAMUEL HARGROVE,
JASPER N. DAVIDSON,
JOHN RATLIFF,
WM. M. COCKRUM,
NATHAN FIDLER,

Committee.

Report received and committee discharged.

Mr. Seward submitted the following resolution:

WHEREAS, The governments of France and Germany have prohibited the importation of American pork into their respective countries; and,

WHEREAS, The pretended reasons given for the prohibition above mentioned are infamous and malicious, and is calculated to injure one of the most important industries of America in other countries; therefore,

Resolved, That we earnestly ask our representatives in Congress to take such steps, and pass such laws restricting importation into this country of impure wine and other articles, in retaliation, until such time as the restrictions above mentioned shall have been removed.

J. Q. A. SIEG,
W. B. SEWARD,
AARON JONES,

Committee.

Which was adopted, after the following discussion:

REMARKS.

Mr. Seward. If pork has not the right kind of inspection, and if it is not all right, an unjust inspection or intended inspection makes it worse. Germany has prohibited the transit of pork through that country to Switzerland. It is not because of any imperfection of the pork, but the fact is, the thing exists to injure the great interest of this country. There is no doubt about it.

Mr. Sieg. The restrictions have partially been removed by France, and not by Germany. The pork has to be well cured, and they claim that no American pork is well cured that comes there. This subject should properly come up before this Board. It is our duty to ask Congress to look after this, and ask the President to take the matter into consideration.

Mr. Ratliff. The resolution asks that we take steps to restrict the importation of liquors until they abandon the restrictions on pork into their country. I think we should restrict their liquors altogether.

On motion by Mr. Wildman, the Secretary was authorized to have the resolution printed and sent to the Indiana Congressmen. Carried.

Mr. Seward. If we are foolish enough to buy these false wines, we should suffer; and if the people of Germany are fools enough to buy bad pork, let them do it. I want to stop this embargo, and let everything go on its merits. It is the same way with our pork when sent there.

Mr. Ratliff. We have a right to protect our citizens against bad importations.

Hon. John Ratliff, of Grant county, then read his address on "Tile Drainage," which will be found elsewhere in this book, with the remarks that followed.

Mr. Seward. I think it is due to the gentlemen that a very hearty vote of thanks be tendered to Mr. Ratliff for his able address. Carried.

Mr. Mitchell referred to the failure of Mr. Fletcher, the Fish Commissioner, to respond to his part of the programme, and requested that the Secretary be authorized to invite some talent in this direction for our next annual meeting.

REMARKS.

Mr. Seward. We have a Fish Commissioner in this State who has been invited to give us some of his knowledge on this subject, and it is his duty to do so.

Mr. Cox. I noticed not long since in a scientific paper some remarks about the growing of the German carp, and advised us to stand from under it until some one investigated it.

L. B. Custer. I have a fish pond, and there are several others here who have. I got my carp from the department at Washington. I have written to our Commissioner several times about the distribution of carp, but never got an answer from him.

Messrs. Lockhart and Seward were appointed to confer with the Governor, and ascertain why the Fish Commissioner has not responded to this Board.

Mr. Lockhart. I move that a committee be appointed to interview the Governor, to know why Mr. Fletcher did not deliver his address on "Fish Culture." This motion was adopted, and the following committee appointed: Messrs. Lockhart and Seward.

Dr. Brown asked to be excused from delivering his essay on "Modern Agriculture," as the Governor, in his address, used the most of his statistics, and he would prepare another for the annual report, which was agreed to by consent.

Mr. Sunman read the following report on "Change of Fair Grounds:"

Your committee appointed to examine into the proposition made by S. K. Fletcher, Esq., of Indianapolis, to exchange a tract of land lying three (3) miles east of this city for our present ground, report that we, in company with Mr. Fletcher, visited the grounds and made a thorough examination of the same, and find the grounds of Mr. Fletcher are very valuable; but there are circumstances surrounding the Board, at this time, rendering it unadvisable to make any exchange of grounds at present. Respectfully submitted,

T. W. W. SUNMAN,
R. M. LOCKHART,
S. W. DUNGAN,

Committee.

The report was concurred in.

Mr. Johnson moved that the address of Wm. A. Peelle, Jr., Chief of the Bureau of Statistics, be received with a vote of thanks. (Published elsewhere in this book.)

On motion of Mr. Sunman it was recommended that the next State Fair be held the week commencing Monday, September 29, which was referred to the Board proper.

Hon. R. M. Lockhart then delivered his address on "Does Farming Pay in Indiana. If not, why not?" (Published elsewhere in this book in full.)

Received by a rising vote of thanks.

Mr. Cox. I wish to bring before the Board a matter in regard to the fair in Hendricks county. We have had no county fair for three or four years. There is a license fund on hand. The secretary drew this fund and turned it over to the New Ross fair. We have a society at Plainfield, but have not made a report until last year. We have held our fairs and given diplomas, and made our report, and the question is, who shall draw this license fund? The county agricultural society has sold their ground and the society disbanded.

President Mitchell. If it is a live society and the only one in the county, it is certainly the right one to have this fund.

Mr. Lockhart. Mr. Cox said the license fund went to Montgomery county, the New Ross District Society. Has that fair association a right to draw this fund?

Mr. Johnson. I do not know that this subject properly comes before this Board. The proper relief would be for the county officers to distribute this fund. If any one has drawn this fund who is not entitled to it, the county officers are the ones to go to for relief.

Mr. Ratliff. The secretary here furnishes the serving president of the county society with a certificate. He presents that to the County Auditor, demanding his claims. We have not anything to do with it.

President Mitchell. They have been recognized here from year to year, and I think they are the rightful delegates.

Major Wildman. If this society has not been represented in this Delegate Board there may be some question, but if they have, it is not a question for this Board to settle; it is between that society and the county officers.

Mr. Cox. This society has been represented here for years. Since the old society of Hendricks county ceased we are the only ones in existence in that county. I think we are the ones to receive it.

Mr. Seig. The question is whether any society aside from the county society has any right to the money. This society does not set up the fact that they are a county organization in order to draw a license fund; they require a certificate that they are authorized. The County Auditor draws the proper paper on the treasurer of the county, and he pays this out. If the gentleman here gets his certificate and presents it to the Auditor he can draw his money and in no other way.

Mr. Ratliff. If he is a county agricultural society delegate he can get the money, if not, it is their business and not ours. We have no right to put anything on our minutes about it.

The following paper was read in regard to calling the atten-

tion of the Governor to investigate the cause of the Fish Commissioner not responding to this Board:

Mr. Seward, from the committee, reported the Governor not in the city, and offered the following preamble and resolution:

WHEREAS, Various complaints from many parts of this State have come to this Board of a lack of attention on the part of the State Fish Commissioner, to their often repeated letters and personal appeals to him for information on the subject of fish culture, or a supply of young carp, so liberally supplied him for distribution by the Government Fish Commissioner; and

WHEREAS, The interest that is now being awakened in the important matter of fish culture, demands a better service on the part of the State Fish Commissioner, therefore

Resolved, That the attention of the Governor of our State be called to this matter, and that if the fault is from a lack of funds on the part of the State Fish Commissioner to properly discharge the duties of his office, that the Governor be requested to take such steps as will place this matter properly before the next Legislature, to the end, that such legislation will be had as will remedy the evils complained of; and if the fault is not from the cause above mentioned then that he remove said Commissioner, and appoint one that will pay proper attention to the duties of his office.

Mr. Cotteral. I think we had better go slow, as it sounds like censuring the Commissioner.

Mr. Seward. That is not censuring.

Mr. Johnson. I think we have been going slow.

Mr. Custer. I understand there is money on hand for the use of the Commissioner.

Mr. Wildman. Have the preamble and resolution read again.

Mr. Seward reads it again.

Mr. Custer. It is not the lack of funds that caused negligence.

Mr. Heron. I feel like complaining of the Fish Commissioner. He has been asked for three consecutive years to contribute an essay for this Board. He has treated us with indifference, and in his last report did not give us credit for the list of fishes in the State, as it appears in his report, which he got from the Agricultural Report of 1876.

On motion, the resolution was adopted.

Mr. Wildman. I move that Mr. C. E. Merrifield, of Indian-

apolis, be requested to furnish his essay on "The Importance of Mechanical Appliances for Successful Farming," for the report. Concurred in. (May be found elsewhere in this book in full.)

On motion, the Delegate Board adjourned.

MEETING OF THE STATE BOARD—(OLD BOARD.)

Board met, President Mitchell in the chair. On call of the roll all of the old members answered to their names except Mr. Hancock.

On motion, the Board adjourned until 1:30 o'clock P. M.

2:30 O'CLOCK P. M.

Board proper met. President Mitchell in the chair. Minutes of Delegate Board read and approved, as corrected.

The Secretary read a communication from Messrs. Scheidt & Davis, of Lake county, Ind., claiming the premium offered by the Board on the "best fat hog" at the Chicago Fat Stock Show, last November, they having taken the premium on fat barrows in grades or crosses. After investigation and discussion, it was decided that the Indiana premium was in the nature of a sweepstake premium, and not for any one kind or class of hog, and therefore not due to them.

The Secretary then read a communication from the Woman's State Fair Association, asking that the value of lost (or stolen) articles belonging to Miss Navin, of Indianapolis, to the amount of five (\$5) dollars be allowed. The claim being contrary to the rules of the Board, it was rejected.

The Secretary read a communication from Mr. Fleming, Secretary of the Toledo Fair Circuit, including a bill of seven dollars and fifty cents for printing three hundred pamphlets of the proceedings of the meeting at Detroit, it being one-fourth of the expense of twelve hundred.

On motion of Mr. Jones, the bill was allowed.

The Secretary read a communication from William Sigerson,

of Winnemac Station, stating that he had a show at the last State Fair of a large cabinet of grain and grasses from Pulaski county; that the Committee on Awards recommended a premium on the same, but no amount was fixed, and asked that the premium be allowed and the amount named.

On motion of Mr. Custer fifteen (\$15) dollars was allowed and ordered paid.

On motion, the Board adjourned *sine die*.

INDIANA STATE FAIR.

PREMIUM AWARDS 1883.

HORSES.

W. A. BANKS, Superintendent.

BOOK I—Heavy Draft.

(Where State is not given, Indiana is implied.)

NORMANS.

Stallion, 4 years old and over, Bates & Buchanan, Hunt City, Ill	\$40
Stallion, 3 years old and under 4, S. Crumpacker & Co., Westville, Laporte county, Ind	30
Stallion, 1 year old and under 2, S. Crumpacker & Co., Westville, Laporte county, Ind	10
Stallion, sucking colt, S. Crumpacker, Westville, Laporte county, Ind	8
Mare, 4 years old and over, S. Crumpacker, Westville, Laporte county, Ind . .	25
Second premium, Lee S. Brown, Carmel, Hamilton county, Ind	12
Mare, 2 years old and under 3, S. Crumpacker, Westville, Laporte county, Ind	15

CLYDESDALES.

Stallion, 4 years old and over, Geo. Ayneil & Co., Princeton, Ind.	40
Second premium, E. H. & Wm. Peed, Newcastle, Ind.	20
tallion, 3 years old and under 4, Door Prairie Live Stock Association, Door Village, Laporte county, Indiana	30
Second premium, Door Prairia Live Stock Association, Door Village, Laporte county, Ind.	15
Stallion, 2 years old and under 3, Door Prairie Live Stock Association, Door Village, Laporte county, Ind	20
Second premium, Door Prairie Live Stock Association, Door Village, Laporte county, Ind.	10
Stallion, 1 year old and under 2, Door Prairie Live Stock Association, Door Village, Laporte county, Ind	10

Mare, 4 years old and over, E. H. & Wm. Peed, Newcastle, Ind	\$25
Second premium, Door Prairie Live Stock Association, Door Village, Ind.	12
Mare, 3 years old and under 4, Door Prairie Live Stock Association, Door Village, Ind	20
Second premium, Robert Bogue, Fairmont, Grant county, Ind	10
Mare, 2 years old and under 3, Door Prairie Live Stock Association, Door Village, Ind	15
Second premium, Door Prairie Live Stock Association, Door Village, Ind.	7
Mare, 1 year old and under 2, Door Prairie Live Stock Association, Door Village, Ind	10

BOOK II—Heavy Draft.

Stallion, 4 years old and over, John T. Pressley, Indianapolis, Ind	\$30
Stallion, 3 years old and under 4, Bates & Buchanan, Hunt City, Ill.	20
Second premium, Lee S. Brown, Carmel, Hendricks county, Ind.	10
Stallion, 2 years old and under 3, S. Crumpacker & Co., Westville, Laporte county, Ind	15
Second premium, E. H. & Wm. Peed, Newcastle, Ind	7
Stallion, 1 year old and under 2, E. H. & Wm. Peed, Newcastle, Ind.	10
Second premium, Lee S. Brown, Carmel, Hendricks county, Ind	5
Stallion, sucking colt, E. H. & Wm. Peed, New Castle, Ind	8
Second premium, Bates & Buchanan, Hunt City, Ill	4
Mare, 4 years old and over, S. Crumpacker & Co., Westville, Ind	20
Second premium, E. H. & Wm. Peed, New Castle, Ind	10
Mare, 3 years old and under 4, Bates & Buchanan, Hunt City, Ill	15
Mare, 2 years old and under 3, E. H. & Wm. Peed, New Castle, Ind	12
Second premium, Pleasant Alman, Plainfield, Ind	6
Mare, 1 year old and under 2, E. H. & Wm. Peed, New Castle, Ind	10
Sucking filly, Bates & Buchanan, Hunt City, Ill.	8
Second premium, E. H. & Wm. Peed, New Castle, Ind	4
Gelding, 4 years old and over, K. Munter, Indianapolis, Ind	12
Second premium, E. H. & Wm. Peed, New Castle, Ind	6
Gelding, 3 years old and under 4, E. H. & Wm. Peed, New Castle, Ind.	10
Gelding, 2 years old and under 3, E. H. & Wm. Peed, New Castle, Ind.	8
Second premium, Carr Lenen, Clarksville, Ind	4
Heavy draft team, K. Munter, Indianapolis, Ind	20

BOOK III.—Horses for General Purpose.

Stallion, 4 years old and over, John Lewark, Pendleton, Ind	\$40
Second premium, A. Bonge, Cumberland, Marion county, Ind	20
Stallion, 3 years old and under 4, Door Prairie Live Stock Association, Door Village, Ind.	30
Second premium, Martin Burdy, Butlerville, Jennings county, Ind	15
Stallion, 2 years old and under 3, Jos. R. Williams, Indianapolis, Ind	20

Second premium, Buford & Keeney, Danville, Ind	\$10
Stallion, 1 year old and under 2, Pleasant Alman, Plainfield, Ind	10
Second premium, E. S. Folsom, Indianapolis, Ind	5
Stallion, sucking colt, J. T. Gurley, Martinsville, Ind	8
Mare or gelding, 4 years old and over, Door Prairie Live Stock Association, Door Village, Laporte county, Ind.	25
Second premium, Pleasant Alman, Plainfield, Ind	12
Mare, 3 years old and under 4, C. B. Swearengin, Waverly, Morgan county, Ind.	20
Second premium, C. B. Swearengin, Waverly, Morgan county, Ind. . . .	10
Mare, 2 years old and under 3, Door Prairie Live Stock Association, Door Village, Ind.	15
Second premium, Door Prairie Live Stock Association, Door Village, Ind	7
Mare, 1 year old and under 2, John V. Carter, Clermont, Ind.	10
Sucking filly, E. H. and Wm. Peed, New Castle, Ind.	8
Second premium, D. L. Thomas, Rushville, Ind.	4
Gelding 3 years old and under 4, John M. Davis, Columbus, Ind	10
Second premium, C. B. Swearengin, Waverly, Morgan county, Ind . . .	5
Gelding, 2 years old and under 3, E. H. & William Peed, Newcastle, Ind. . .	8
Second premium, D. L. Thomas, Rushville, Ind	4
Pair matches, geldings or mares, J. W. Browning, Indianapolis, Ind. . . .	20
Second premium, H. T. Wood, Indianapolis, Ind	10

BOOK IV.—Light Harness Horses.

Stallion, 4 years old and over, Wm. Porter, Logansport, Ind	\$30
Second premium, H. A. Russell, Indianapolis, Ind.	15
Stallion, 3 years old and under 4, Wm. A. Cox, Brightwood, Ind	25
Second premium, Newby & Hernley, Newcastle, Ind	12
Stallion, 2 years old and under 3, Harley Russell, Indianapolis, Ind. . . .	14
Second premium, Buford & Keeney, Danville, Ind.	7
Mare or gelding, 4 years old and over, Chas. Claucey, Edinburg, Ind. . . .	15
Second premium, Z. T. Smiley, Indianapolis, Ind	7
Mare, 3 years old and under 4, Buck Dickerson, Greensburg, Ind	14
Second premium, Cal. Bates, Falmouth, Fayette county, Ind	7
Mare, 2 years old and under 3, Eller Bros., Noblesville, Ind	7
Second premium, J. T. Gunley, Martinsville, Ind	3
Gelding, 3 years old and under 4, G. W. Buxton, Columbus, Ind	14
Second premium, John Lewark, Pendleton, Ind	7
Gelding, 2 years old and under 3, J. Stiner, Indianapolis, Ind.	7
Stallion, gelding or mare, any age, L. D. Bolton, Muncie, Ind	15
Second premium, John W. Fort, Indianapolis, Ind	7

BOOK V.—Sweepstakes on Horses.

Stallion of any age, draft, Geo. Agniel & Co., Princeton, Gibson county, Ind .	\$50
Stallion, any age, except heavy draft, Door Prairie Live Stock Association, Door Village, Ind	50

Mare of any age, draft, S. Crumpacker & Co., Westville, Laporte county, Ind.	\$30
Mare of any age, except heavy draft, Pleasant Alman, Plainfield, Ind. . . .	30
Herd of five, consisting one stallion and four mares, heavy draft, to be owned by one exhibiter, S. Crumpacker & Co., Westville, Laporte county, Ind	100
Second premium, Door Prairie Live Stock Ass'n., Door Village, Ind. . .	50
Herd of 5, consisting one 1 stallion and 4 mares, except heavy draft, owned by one exhibiter, Door Prairie Live Stock Association, Door Village, Ind.	100
Second, John M. Wood, Indianapolis, Ind	50

BOOK VI—Speed List.

THREE MINUTE TROT—PURSE \$200.

Cal Bates, Falmouth, Fayette county, Ind.	\$100
Second, J. W. White, Greensburg, Ind	75
Third, Wm. Porter, Logansport, Ind	25

2:37 TROTTERS'—PURSE \$150.

Webster Beymer, Indianapolis, Ind.	80
Second, D. L. Thomas, Rushville, Ind	50
Third, Cal Bates, Falmouth Fayette, county, Ind	20

RUNNING RACE—PURSE \$200.

S. J. St. Clair, Indianapolis, Ind	120
Second, James Neff, Lebanon, Ind	60
Third, Greenville Wilson, Waldron, Shelby county, Ind	20

PACING RACE, FREE FOR ALL—PURSE \$300.

H. B. Stout, Indianapolis, Ind.	160
Second, Dan Burge, Cambridge City, Ind	90
Third, G. W. Russell, Richmond, Ind.	50

TROTTING RACE—PURSE \$250.

H. V. Padfield, Danville, Ill.	125
Second, H. S. Shultz, Danville, Ill	75
Third, Webster Beymer	50

FREE FOR ALL TROT—PURSE \$400.

J. M. Owens & Bro., Greencastle, Ind.	200
Second, Abiah Hayes, Elizabethtown, Ohio	125
Third, J. F. Gosnell, Lewisville, Henry county, Ind	75

FREE FOR ALL TROT, INDIANAPOLIS HORSES—PURSE \$75.

Ab. Springstrin, city	35
Second, John Redding, city	25
Third, Vick Backus, city	15

BOOK VII.

Jack, 3 years old and over, J. R. Hernley, New Castle, Ind	\$20
Second, Abner Seigler, Greencastle, Ind.	10
Jennet, 3 years old and over, Lee S. Brown, Carmel, Hendricks county, Ind. . .	10
Second, John Sweeney, Greencastle, Ind.	5
Mule, 1 year old and over, Samuel McCurdy, Traders' Point, Marion co., Ind .	7
Second, Samuel McCurdy, Traders' Point, Marion county, Ind.	3
Mule colt, J. R. Hernley, New Castle, Ind.	6
Second, J. R. Hernley, New Castle, Ind.	3
Pair mules, 3 years old and over, Owen Lindley, Paoli, Orange county, Ind. .	20

BOOK VIII.—Sweepstakes on Jacks and Jennets.

Jack of any age, Abner Seigler, Greencastle, Ind	\$20
Jennet of any age, Lee S. Brown, Carmel, Hendricks county, Ind	10
Jack showing the best colts under 1 year old, J. R. Hernley, New Castle, Ind .	20

CATTLE.

S. W. DUNGAN, Superintendent.

BOOK IX.—Short Horns.

Bull, 3 years old and over, Thomas Wilhoit, Middletown, Henry county, Ind. \$30	
Second, Pickerell, Thomas & Smith, Harristown, Macon county, Ill . . .	15
Bull, 2 years old and under 3, T. S. Grundy, Springfield, Washington county, Kentucky	25
Second, Pickerell, Thomas & Smith, Harristown, Ill	12
Bull, 1 year old and under 2, Thomas Wilhoit, Middletown, Ind	20
Second, John S. Steel, Anderson, O	10
Bull calf, Thomas Wilhoit, Middletown, Ind	10
Second, Pickerell, Thomas & Smith, Harristown, Ill	5
Cow, 3 years old and over, Thomas Wilhoit, Middletown, Ind	30
Second, John S. Steel, Anderson, O	15
Cow, 2 years old and under 3, Pickerell, Thomas & Smith, Harristown, Ill .	25
Second, Pickerell, Thomas & Smith, Harristown, Ill	12
Heifer, 1 year old and under 2, Thomas Wilhoit, Middletown, Ind	20
Second, Pickerell, Thomas & Smith, Harristown, Ill	10
Heifer calf, Pickerell, Thomas & Smith, Harristown, Ill	10
Second, Pickerell, Thomas & Smith, Harristown, Ill	5

BOOK X.—Herefords.

Bull, 2 years old and under 3, Fletcher, Holt & Co, Indianapolis, Ind . . .	\$25
Bull, 1 year old and under 2, Fletcher, Holt & Co., Indianapolis, Ind . . .	10
Cow, 3 years old and over, Fletcher, Holt & Co., Indianapolis, Ind . . .	30
Cow, 2 years old and under 3, Fletcher, Holt & Co., Indianapolis, Ind . . .	20
Heifer, 1 year old and under 2, Fletcher, Holt & Co., Indianapolis, Ind . . .	10

BOOK XI.—Polled Angus.

Bull, 2 years old and over, Fletcher, Holt & Co., Indianapolis, Ind . . .	\$30
Cow, 3 years old and over, Fletcher, Holt & Co., Indianapolis, Ind . . .	30
Cow, 2 years old and under 3, Fletcher, Holt & Co., Indianapolis, Ind . . .	20
Heifer, 1 year old and under 2, Fletcher, Holt & Co., Indianapolis, Ind . . .	10
Second, Fletcher, Holt & Co., Indianapolis, Ind . . .	5
Heifer calf, Fletcher, Holt & Co., Indianapolis, Ind . . .	10

BOOK XII.—Jerseys.

Bull, 3 years old and over, Beech Grove Farm, Beech Grove, Marion Co., Ind.	\$30
Second premium, W. J. Hasselman, Indianapolis, Ind . . .	15
Bull, 2 years old and under 3, Beech Grove Farm, Beech Grove, Ind . . .	25
Second premium, J. D. & J. D. Conner, Wabash, Ind . . .	12
Bull, 1 year old and under 2, J. D. & J. D. Conner, Wabash, Wabash Co., Ind.	20
Second premium, Beech Grove Farm, Beech Grove, Ind . . .	10
Bull calf, W. J. Hasselman, Indianapolis, Ind . . .	10
Second premium, Beech Grove Farm, Beech Grove, Ind . . .	5
Cow, 3 years old and over, Beech Grove Farm, Beech Grove, Ind . . .	30
Second premium, Wm. Higgins, Meltzer, Ind . . .	15
Cow, 2 years old and under 3, Beech Grove Farm, Beech Grove, Ind . . .	25
Second premium, Beech Grove Farm, Beech Grove, Ind . . .	12
Heifer, 1 year old and under 2, W. J. Hasselman, Indianapolis, Ind . . .	20
Second premium, T. P. Haughey, Indianapolis, Ind . . .	10
Heifer calf, J. D. & J. D. Conner, Wabash, Ind . . .	10
Second premium, W. J. Hasselman, Indianapolis, Ind . . .	5

Book XIII.—Devons.

Bull, 3 years old and over, J. J. Scarff & Sons, New Carlisle, Ohio . . .	\$30
Second premium, Irwin York, Broch, Dark county, Ohio . . .	15
Bull, 2 years old and under 3, Irwin York, Broch, Dark county, Ohio . . .	25
Bull, 1 year old and under 2, Wm. Higgins, Meltzer, Ind . . .	20
Bull calf, Irwin York, Broch, Dark county, Ohio . . .	10
Second premium, J. J. Scarff & Sons, New Carlisle, Ohio . . .	5
Cow, 3 years old and over, J. J. Scarff & Sons, New Carlisle, Ohio . . .	30
Second premium, J. J. Scarff & Sons, New Carlisle, Ohio . . .	15

BOOK XIII—DEVONS—Continued.

Cow, 2 years old and under 3, Irvin York, Ohio	\$25
Second premium, J. J. Scarff & Sons, New Carlisle, Ohio	12
Heifer, 1 year old and under 2, Wm. Higgins, Meltzer, Ind	20
Second premium, J. J. Scarff & Sons, New Carlisle, Ohio	10
Heifer calf, Irvin York, Broch, Dark county, Ohio	10
Second premium, J. J. Scarff & Sons, New Carlisle, Ohio	5

BOOK XIV—Ayrshires.

Bull, 3 years old and over, Wm. Fairweather, McLane, Erie county, Pa . . .	\$30
Bull, 2 years old and under 3, Wm. Fairweather, McLane, Erie county, Pa .	25
Bull 1 year and under 2, Wm. Fairweather, McLane, Erie county, Pa . . .	20
Bull calf, Wm. Fairweather, McLane, Erie county, Pa	10
Cow 3 years old and over, Wm. Fairweather, McLane, Pa	30
Second premium, Wm. Fairweather, McLane, Pa	15
Cow 2 years old and under 3, Wm. Fairweather, McLane, Pa	25
Second premium, Wm. Fairweather, McLane, Pa	12
Heifer 1 year old and under 2, Wm. Fairweather, McLane, Pa	20
Second premium, Wm. Fairweather, McLane, Pa	10
Heifer calf, Wm. Fairweather, McLane, Pa	10
Second premium, Wm. Fairweather, McLane, Pa	5

BOOK XV—Holsteins.

Bull 3 years old and over, J. W. Stillwell, Troy, Miami county, Ohio	\$30
Bull 2 years old and under 3, Wm. O. Jackson & Sons, South Bend, St. Joseph county, Indiana	25
Bull 1 year old and under 2, J. W. Stillwell, Troy, Ohio	20
Second premium, J. W. Stillwell, Troy, Ohio	10
Bull calf, J. W. Stillwell, Troy, Ohio	10
Second premium, W. O. Jackson & Sons, South Bend, Indiana	5
Cow 3 years old and over, J. W. Stillwell, Troy, Ohio	30
Second premium, J. W. Stillwell, Troy, Ohio	15
Cow 2 years old and under 3, Wm. O. Jackson & Sons, South Bend, Indiana .	25
Second premium, Wm. O. Jackson & Sons, South Bend, Indiana	12
Heifer 1 year old and under 2, J. W. Stillwell, Troy, Ohio	20
Second premium, J. W. Stillwell, Troy, Ohio	10
Heifer calf, Wm. O. Jackson & Sons, South Bend, Indiana	10
Second premium, J. W. Stillwell, Troy, Ohio	5

BOOK XVI—Oxen and Steers.

Steer 3 years old and over, S. Cutsinger, Edinburg, Indiana	\$20
Fatted steer, S. Cutsinger, Edinburg, Indiana	25

SWEEPSTAKES ON CATTLE.

Bull any age or breed, Thomas Wilhoit, Middletown, Indiana	\$40
Cow any age or breed, Thomas Wilhoit, Middletown, Indiana	30
Bull to be exhibited with 3 of his calves not over 12 months old, Thomas Wilhoit, Middletown, Indiana	50
Herd of 5 head, consisting of one bull 2 years old or over, 1 cow 3 years old and under 4; 1 heifer 2 years old and under 3; 1 heifer 1 year old and under 2; 1 heifer calf under 1 year old, Thomas Wilhoit, Middletown, Indiana	200
Second premium, Thomas & Smith, Harristown, Illinois	100

BOOK XVI—Breeding Breeds of Beef Cattle.

Best young herd of beef cattle, to consist of 1 bull and 4 heifers, all under 2 years of age, Thomas Wilhoit, Middleton, Ind	\$100
Second premium, Pickerell, Thomas & Smith, Harristown, Ill	50
Herd, consisting of 1 bull 2 years old or over, 1 cow 3 years old and under 4, 1 heifer 2 years old and under 3, 1 heifer 1 year old and under 2, 1 heifer calf 1 year old, Wm. O. Jackson & Sons, South Bend, Ind	200
Second premium, Beech Grove Farm, Beech Grove, Ind	100

SHEEP.

JASPER N. DAVIDSON, Superintendent.

BOOK XVII—Fine Wool Sheep, to include American, Spanish and French Merino.

Buck 2 years old and over, Cook & Morse, Raymond, Ohio	\$14
Second premium, Copper & McFarland, Mt. Vernon, Ohio	7
Buck 1 year old und under 2, Copper & McFarland, Mt. Vernon, Ohio	10
Second premium, Copper & McFarland, Mt. Vernon, Ohio	5
Buck lamb; Cook & Morse, Raymond, Ohio	8
Second premium, Copper & McFarland, Mt. Vernon, Ohio	4
Ewe lambs, Copper & McFarland, Mt. Vernon, Ohio	6
Second premium, Cook & Morse, Raymond, Ohio	3
Ewe 2 years old and over, Cook & Morse, Raymond Ohio	12
Second premium, Cook & Morse, Raymond, Ohio	6
Ewe 1 year old and under 2, Copper & McFarland, Mt. Vernon, Ohio	8
Second premium, Cook & Morse, Raymond, Ohio	4
Five lambs, Copper & McFarland, Mt. Vernon, Ohio	10
Second premium, Cook & Morse, Raymond, Ohio	5

BOOK XVIII—Long Wool Sheep, Cotswold, Leicester or Lincolns.

Buck 2 years old and over, W. D. Privett, Greensburg, Indiana	\$14
Second premium, W. T. Woodford & Son, Paris, Kentucky	7
Buck 1 year old and under 2, W. T. Woodford & Son, Paris, Kentucky	10
Second premium, W. D. Privett, Greensburg, Indiana	5
Buck lambs, W. T. Woodford & Son, Paris, Kentucky	8
Second premium, W. T. Woodford & Son, Paris, Kentucky	4
Ewe 2 years old and over, W. D. Privett, Greensburg, Indiana	12
Second premium, W. T. Woodford & Son, Paris, Kentucky	6
Ewe 1 year old and under 2, W. T. Woodford & Son, Paris, Kentucky	8
Second premium, W. D. Privett, Greensburg, Indiana	4
Ewe lamb, W. T. Woodford & Son, Paris, Kentucky	6
Second premium, W. T. Woodford & Son, Paris, Kentucky	3
Five lambs, W. T. Woodford & Son, Paris, Kentucky	10

BOOK XIX.—Southdowns.

Buck, 2 years old and over, Uriah Privett, Greensburg, Ind	\$14
Second, J. G. Byars & Son, Simpsonville, Shelby county, Ind	7
Buck, 1 year old and under 2, J. G. Byars & Son, Simpsonville, Shelby county, Indiana	10
Second, J. G. Byars & Son, Simpsonville, Shelby county, Ind	5
Buck lamb, J. G. Byars & Son, Simpsonville, Shelby county, Ind	8
Second, Uriah Privett, Greensburg, Ind	4
Ewe, 2 years old and over, J. G. Byars, Simpsonville, Ind	12
Second, Uriah Privett, Greensburg, Ind	6
Ewe, 1 year old and under 2, J. G. Byars & Son, Simpsonville, Ind	8
Second, Uriah Privett, Greensburg, Ind	4
Ewe lamb, J. G. Byars & Son, Simpsonville, Ind	6
Second, Marsh Vories, Edinburg, Ind.	3
Five lambs, J. G. Byars & Son, Simpsonville, Ind	10
Second, Uriah Privett, Greensburg, Ind	5

BOOK XX.—Oxfordshire, Shropshire and Hampshire.

Buck, 2 years old and over, E. S. Butler, Ridgeway, Hardin county, Ohio	\$14
Second, George Allen & Sons, Palermo, Edgar county, Ill	7
Buck, 1 year old and under 2, Thompson & Banks, Laporte, Ind	10
Second, George Allen & Sons, Palermo, Edgar county, Ill	5
Buck lamb, Uriah Privett, Greensburg, Ind	8
Second, George Allen & Sons, Palermo, Edgar county, Ill	4
Ewe, 2 years old and over, E. S. Butler, Ridgeway, O	12
Second, George Allen & Sons, Palermo, Edgar county, Ill	6

BOOK XX—OXFORDSHIRE, SHROPSHIRE AND HAMPSHIRE—Continued.

Ewe, 1 year old and under 2, Thompson & Banks, Laporte, Ind	\$8
Second, George Allen & Sons, Palermo, Edgar county, Ill	4
Ewe lamb, George Allen & Sons, Palermo, Ill	6
Second, George Allen & Sons, Palermo, Ill	3
Five lambs, George Allen & Sons, Palermo, Ill	10
Second, Uriah Privett, Greensburg, Ind.	5

BOOK XXI.—Sweepstakes on Fine Wool and Other Sheep.

Buck, Cook & Morse, Raymond, O	\$20
Ewe, any age, Cook & Morse, Raymond, O	20
Flock consisting of 1 buck and 2 ewes, 2 years old and under 3; 2 ewes, 1 year old and under 2, and 2 ewes under 1 year old, Cook & Morse, Raymond, O	30
Second, Copper & McFarland, Mt. Vernon, O	15
Buck, long wool, W. T. Woodford & Son, Paris, Ky	20
Ewe, any age, long wool, W. D. Privett, Greensburg, Ind	20
Flock, consisting of 1 buck and 2 ewes 2 years old and under 3; 2 ewes 1 year old and under 2, and 2 ewes under 1 year old, W. T. Woodford & Son, Paris, Kentucky	30
Second premium, W. D. Privett, Greensburg, Indiana	15
Buck, middle wool, Thompson & Banks, Laporte, Indiana	20
Ewe any age, middle wool, Thompson & Banks, Laporte, Indiana	20
Flock, consisting of 1 buck and 2 ewes 2 years old and under 3; 2 ewes 1 year old and under 2, and 2 ewes under 1 year old, E. S. Butler, Ridgeway, Ohio	30
Second premium, George Allen & Sons, Palermo, Edgar county, Illinois	15
Fat wether for mutton, W. D. Privett, Greensburg, Indiana	10
Fat ewe for mutton, Geo. Allen & Sons, Palermo, Edgar county, Illinois	10
Pair Oxford Down sheep, buck and ewe, owned in Indiana and lambed, the property of the exhibiter, (premium offered by T. W. W. Sanman,) Sol. Wright, Ghent, Carroll county, Kentucky	silver medal.
Pair Merino sheep, buck and ewe, owned in Indiana and lambed, the property of the exhibiter, Ward Kennedy & Son, Butler, Dekalb county, Indiana	silver medal.
Best herd of 3 sheep, (offered by Indiana Farmer Co.,) E. S. Butler, Ridgeway, Hardin county, Ohio	silver pitcher.

HOGS.

 DICK JONES, Superintendent.

BOOK XXII.—Berkshire.

Boar, 2 years old and over, Heck & McColley, Waldron, Shelby county, Ind .	\$14
Second, James Riley, Thorntown, Ind	7
Boar, 1 year old and under 2, Heck & McColley, Waldron, Ind	12
Second, Heck & McColley, Waldron, Ind	6
Boar, under 12 and over 6 months old, I. N. Barker, Thorntown, Ind	10
Second, Heck & McColley, Waldron, Ind	5
Boar, under 6 months old, A. S. Gilmour & Co., Greensburg, Ind	6
Second, I. N. Barker, Thorntown, Ind	3
Sow, 2 years old and over, Heck & McColley, Waldron, Ind	14
Second, A. W. Martin, Muncie, Ind	7
Sow, 1 year old and under 2, A. W. Martin, Muncie, Ind	12
Second, Heck & McColley, Waldron, Ind	6
Sow, under 12 months and over 6 months old, Heck & McColley, Waldron, Ind	10
Second, A. W. Martin, Muncie, Ind	5
Sow, under 6 months old, A. S. Gilmour & Co., Greensburg, Ind	6
Second, W. A. Maze, Sharpsville, Tipton county, Ind	3
Two shoats under 6 months old, I. N. Barker, Thorntown, Ind	12
Second, A. S. Gilmour & Co., Greensburg, Ind	6
Pair of pigs under 6 months old, I. N. Barker, Thorntown, Ind	10
Second, A. S. Gilmour & Co., Greensburg, Ind	5

BOOK XXIII.—Poland China.

Boar, 3 years old and over, W. C. Williams, Knightstown, Ind	\$14
Second, Mints Bros., Mt. Comfort, Hancock county, Ind	7
Boar, 1 year old and under 2, A. S. Gilmour & Co., Greensburg, Ind	12
Second, Davis & Frazier, Mooreland, Henry county, Ind	6
Boar, under 12 and over 6 months old, A. W. Ross, Muncie, Ind	10
Second, W. C. Williams & Co., Knightstown, Ind	5
Boar, under 6 months old, W. C. Williams & Co., Knightstown, Ind	6
Second, Mugg & Seagrave, Center, Howard county, Ind	3
Sow, 2 years old and over, W. C. Williams & Co., Knightstown, Ind	14
Second, Baker Bros., Greensburg, Ind	7
Sow, 1 year old and under 2, W. C. Williams & Co., Knightstown, Ind . . .	12
Second, Tyner Bros., Morristown, Ind	6
Sow, under 12 and over 6 months old, A. W. Ross, Muncie, Ind	10
Second, G. A. Helms, McCordsville, Hancock county, Ind	5

BOOK XXIII—POLAND CHINA—Continued.

Sow, under 6 months old, Mugg & Seagrave, Center, Howard county, Ind . .	\$6
Second, W. A. Robins & Co., Greensburg, Ind	3
Five shoats, under 6 months old, Mugg & Seagrave, Center, Howard county, Indiana	12
Second, A. S. Gilmour & Co., Greensburg, Ind	6
Sow and not less than 5 sucking pigs, Frank Shepherd, Indianapolis, Ind . .	12
Second, W. A. Robins & Co., Greensburg, Ind	6
Pair of pigs, under 6 months old, Baker Bros., Greensburg, Ind.	10
Second premium, Mints Bros., Mt. Comfort, Hancock county, Ind	5

BOOK XXIV.—All Other Large Breeds.

Boar, 2 years old and over, Irvin York, Brock, Darke county, Ohio	\$14
Second premium, R. S. Russell, Zionsville, Ind	7
Boar, 1 year old and under 2, H. McCord, McCordsville, Ind	12
Boar, under 12 and over 6 months old, R. S. Russell, Zionsville, Ind.	10
Second premium, Irvin York, Brock, Darke county, Ohio	5
Boar, under 6 months old, H. McCord, McCordsville, Ind	6
Second premium, R. S. Russell, Zionsville, Ind	3
Sow, 2 years old and over, R. S. Russell, Zionsville, Ind	6
Second premium, Irvin York, Brock, Darke county, Ohio	3
Sow, 1 year old and under 2, H. McCord, McCordsville, Ind.	12
Second premium, H. McCord, McCordsville, Ind.	6
Sow, under 12 and over 6 months old, R. S. Russell, Zionsville, Ind	10
Second premium, H. McCord, McCordsville, Ind.	5
Sow, under 6 months old, H. McCord, McCordsville, Ind	6
Second premium, Irvin York, Brock, Darke county, Ohio	3
Five shoats, under 6 months old, H. McCord, McCordsville, Ind.	12
Second premium, Irvin York, Brock, Darke county, Ohio	6
Sow and not less than 5 sucking pigs, R. S. Russell, Zionsville, Ind	12
Second premium, R. S. Russell, Zionsville, Ind	6

BOOK XXV.—Suffolk, Essex, and Other Small Breeds, Regardless of Color.

Boar, 2 years old and over, A. C. Green, Winchester, Ind	\$14
Second premium, W. A. Maze, Sharpsville, Ind	7
Boar, under 12 and over 6 months old, W. A. Maze, Sharpsville, Ind	10
Second premium, A. C. Green & Co., Randolph county, Ind.	5
Boar, under 6 months old, W. A. Maze, Sharpsville, Ind	6
Second premium, A. C. Green & Co., Winchester, Randolph county, Ind . .	3
Sow, 2 years old and over, A. C. Green & Co., Winchester, Randolph co., Ind .	14
Second premium, W. A. Maze, Sharpsville, Ind	7
Sow, 1 year old and under 2, W. A. Maze, Sharpsville, Ind	12
Second premium, A. C. Green & Co., Winchester, Randolph county, Ind . .	6

BOOK XXV—SUFFOLK, ESSEX, ETC.—Continued.

Sow, under 12 and over 6 months old, A. C. Green & Co., Winchester, Randolph county, Ind	\$10
Second premium, A. C. Green & Co., Winchester, Randolph county, Ind	5
Sow, under 6 months old, A. C. Green & Co., Winchester, Ind	6
Second premium, W. A. Maze, Sharpsville, Ind	3
Five shoats under 6 months old, A. C. Green & Co., Winchester, Ind.	12
Second premium, W. A. Maze, Sharpsville, Ind	6
Sow and not less than 5 sucking pigs, W. A. Maze, Sharpsville, Ind	12
Second premium, A. C. Green & Co., Winchester, Ind	6

BOOK XXVI—Sweepstakes on Hogs. (*Foland Chinas, Chester Whites, Jersey Reds, and Other Large Breeds.*)

Boar, any age, A. S. Gilmour & Co., Greensburg, Ind	\$20
Sow, any age, W. A. Robins & Co., Greensburg, Ind	20
Herd, boar 1 year old and over, sow 2 years old and over, sow 1 year old and under 2, sow 6 months old and under 12, sow under 6 months old, W. A. Robins & Co., Greensburg, Ind	40
Second premium, W. C. Williams & Co., Knightstown, Ind	20

(*Berkshires, Essers, Suffolks, and Other Small Breeds.*)

Boar, any age, Heck & McColley, Waldron, Ind.	\$20
Sow, any age, A. C. Green, Winchester, Ind	20
Herd, boar 1 year old and over, sow 2 years old or over, sow 1 year old and under 2, sow 6 months old and under 12, and sow under 6 months old, Heck & McColley, Waldron, Shelby county, Ind.	40
Second premium, A. C. Green & Co., Winchester, Ind	20
Best fat barrow, T. P. Troutman, Hamilton, Steuben county, Indiana	10
Best fat sow, W. C. Williams & Co., Knightstown, Indiana	10
Special premium offered by the Indiana Farmer Company :	
Best herd of three hogs, W. C. Williams & Co., Knightstown, Ind. silver pitcher.	10

POULTRY.

T. W. W. SUNMAN, Superintendent.

BOOK XXVII—Poultry.

Pair light Brahma fowls, G. A. Danley, city	\$5
Second premium, I. N. Barker, Thorntown, Boone county, Indiana . . .	2
Pair light Brahma chicks, I. N. Barker, Thorntown, Indiana	5
Second premium, G. A. Danley, Indianapolis, Indiana	2
Pair dark Brahma fowls, D. C. Harter, North Manchester, Wabash county, Ind.	5
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	2
Pair dark Brahma chicks, D. C. Harter, North Manchester, Wabash county, Indiana	5
Second premium, Sid. Conger, Shelbyville, Indiana	2
Pair buff Cochín fowls, J. W. Spears, Alert, Decatur county, Indiana . . .	5
Second premium, J. W. Spears, Alert, Decatur county, Indiana	2
Pair buff Cochín chicks, J. W. Spears, Alert, Decatur county, Indiana . . .	5
Second premium, I. N. Barker, Thorntown, Boone county, Indiana . . .	2
Pair Partridge Cochín fowls, J. S. Kreider, Logansport, Indiana	5
Second premium, W. C. Shortridge, Indianapolis, Indiana	2
Pair Partridge Cochín chicks, J. S. Kreider, Logansport, Indiana	5
Second premium, I. N. Barker, Thorntown, Indiana	2
Pair of pea comb Partridge Cochín fowls, Elstun & Tobin, Indianapolis, Ind.	5
Second premium, Elstun & Tobin, Indianapolis	2
Pair white Cochín chicks, Frank Hubbard, Knightstown, Indiana	5
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	2
Pair of black Cochín fowls, B. F. Hill, Indianapolis, Indiana	5
Second premium, Stanton & Wells, Greenwood, Indiana	2
Pair black Cochín chicks, B. F. Hill, Indianapolis, Indiana	5
Second premium, Stanton & Wells, Greenwood, Indiana	2
Pair of Langshan fowls, W. O. Dakin, Toledo, Ohio	3
Second premium, Thomas W. Pottage, Indianapolis, Indiana	1
Pair of Langshan chicks, Dick Nolin, Rocklane, Indiana	3
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	1
Pair of Plymouth Rock fowls, Sid. Conger, Shelbyville, Indiana	5
Second premium, Sid. Conger, Shelbyville, Indiana	2
Pair of Plymouth Rock chicks, S. E. Wurst, Elyria, Lorain county, Ohio . .	5
Second premium, Sid. Conger, Shelbyville, Indiana	2
Pair of white Leghorn fowls, Elstun & Tobin, Indianapolis, Ind	3
Second, S. E. Wurst, Elyria, Lorain county, O	1
Pair of white Leghorn chicks, Elstun & Tobin, Indianapolis, Ind	3
Second, Elstun & Tobin, Indianapolis, Ind	1

BOOK XXVII—Poultry—Continued.

Pair of brown Leghorn fowls, S. E. Wurst, Elyria, Lorain county, O	\$3
Second, Thomas W. Pottage, Indianapolis, Ind	1
Pair of brown Leghorn chicks, Thomas W. Pottage, Indianapolis, Ind	3
Second, Thomas W. Pottage, Indianapolis, Ind	1
Pair of black Leghorn chicks, S. E. Wurst, Elyria, Lorain county, O	3
Pair of W. F. Black Spanish fowls, S. E. Wurst, Elyria, Lorain county, O . .	3
Second, Stanton & Wells, Greenwood, Johnson county, Ind	1
Pair of W. F. Black Spanish chicks, Stanton & Wells, Greenwood, Johnson county, Ind	3
Second, Stanton & Wells, Greenwood, Johnson county	1
Pair of W. C. Black Polish fowls, I. N. Barker, Thorntown, Ind	3
Second, J. C. Bridge, Logansport, Ind	1
Pair of W. C. Black Polish chicks, I. N. Barker, Thorntown, Ind	3
Second, E. & F. Sites, West Dover, O	1
Pair of bearded W. C. White Polish chicks, Mrs. J. E. Cobb, Indianapolis, Ind	3
Second, Mrs. J. E. Cobb, Indianapolis, Ind	1
Pair of golden Polish fowls or chicks, S. E. Wurst, Elyria, Lorain county, O (fowls)	3
Second, S. E. Wurst, Elyria, Lorain county, O. (chicks)	1
Pair of silver Polish fowls or chicks, E. & F. Sites, West Dover, O	3
Second, E. & F. Sites, West Dover, O	1
Pair of Houdan fowls, S. E. Wurst, Elyria, Lorain county, O	3
Pair of Houdan chicks, S. E. Wurst, Elyria, Lorain county, O	3
Pair of golden Hamburg fowls, Stanton & Wells, Greenwood, Johnson county, Indiana	3
Second, E. & F. Sites, West Dover, O	1
Pair of golden Hamburg chicks, Stanton & Wells, Greenwood, Johnson county, Indiana	3
Second, Stanton & Wells, Greenwood, Johnson county, Ind	1
Pair of silver Hamburg fowls, Dick Nolin, Rock Lane, Ind	3
Second, S. E. Wurst, Elyria, Lorain county, O	1
Pair of silver Hamburg chicks, Dick Nolin, Rock Lane, Ind	3
Second, Dick Nolin, Rock Lane, Ind	1
Pair of black Hamburg fowls, S. E. Wurst, Elyria, Lorain county, O	3
Pair of black Hamburg chicks, I. N. Barker, Thorntown, Boone county, Ind	3
Second, Stanton & Wells, Greenwood, Ind	1
Pair of white Dorking fowls, E. & F. Sites, West Dover, O	3
Pair of white Dorking chicks, E. & F. Sites, West Dover, Ohio	3
Pair of colored Dorking fowls, Stanton & Wells, Greenwood, Ind	3
Second premium, E. & F. Sites, West Dover, Ohio	1
Pair of colored Dorking chicks, Stanton & Wells, Greenwood, Ind	3
Second premium, E. & F. Sites, West Dover, Ohio	1
Pair of black-breasted red Game fowls, E. & F. Sites, West Dover, Ohio . . .	3
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	1

BOOK XXVII—POULTRY—Continued.

Pair black-breasted red Game chicks, D. C. Harter, North Manchester, Wabash county, Ind	\$3
Second premium, E. & F. Sites, West Dover, Ohio	1
Pair yellow duck-wing Game fowls, E. & F. Sites, West Dover, Ohio	3
Pair yellow duck-wing Game chicks, S. E. Wurst, Elyria, Lorain county, Ohio	3
Pair of silver duck-wing Game chicks, E. & F. Sites, West Dover, Ohio . . .	3
Pair of red-breasted red Game bantam fowls, S. E. Wurst, Elyria, Lorain county, Ohio	3
Second premium, Louis W. Fox, Indianapolis, Ind	1
Pair of red-breasted red Game bantam chicks, S. E. Wurst, Elyria, Lorain county, Ohio	3
Pair yellow duck-wing Game bantam fowls, S. E. Wurst, Elyria, Lorain county, Ohio	3
Pair of golden Seabright bantam fowls, I. N. Barker, Thorntown, Ind	3
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	1
Pair golden Seabright bantam chicks, I. N. Barker, Thorntown, Ind	3
Second premium, I. N. Barker, Thorntown, Ind	1
Pair rose-comb bantam fowls or chicks, S. E. Wurst, Elyria, Lorain county, Ohio	3
Second premium, E. & F. Sites, West Dover, Ohio	1
Pair bronze Turkeys, old birds, T. M. Reveal, Clermont, Marion county, Ind .	5
Second premium, H. C. G. Bals, Indianapolis, Ind	2
Pair bronze Turkeys, hatch 1883, H. C. G. Bals, Indianapolis, Ind	5
Second premium, T. M. Reveal, Clermont, Ind	2
Pair white Holland Turkeys, old birds, W. A. Ennis, Clermont, Ind	5
Pair white Holland Turkeys, hatch 1883, Wm. A. Cox, Brightwood, Ind . . .	5
Second premium, Wm. A. Cox, Brightwood, Ind	2
Pair wild Turkeys, old or young, W. C. Shortridge, Indianapolis, Ind	3
Pair Embden Geese, W. A. Ennis, Clermont, Ind	5
Second premium, E. & F. Sites, West Dover, Ohio	2
Pair of Toulouse Geese, H. C. G. Bals, Indianapolis, Ind	5
Second premium, H. C. G. Bals, Indianapolis, Ind	2
Pair Chinese Geese, S. E. Wurst, Elyria, Lorain county, Ohio	5
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	2
Pair of wild geese, W. A. Ennis, Clermont, Ind	3
Second premium, W. A. Ennis, Clermont, Ind	1
Pair of Pekin ducks, Geo. Kinsley, Shelbyville, Ind	3
Second premium, E. & F. Sites, West Dover, Ohio	1
Pair of Rouen ducks, H. C. G. Bals, Indianapolis, Ind	3
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	1
Pair of Aylesbury ducks, S. E. Wurst, Elyria, Lorain county, Ohio	3
Pair of Cayuga ducks, E. & F. Sites, West Dover, Ohio	3
Second premium, S. E. Wurst, Elyria, Lorain county, Ohio	1
Heaviest live turkey, T. M. Reveal	5

BOOK XXVII—POULTRY—Continued.

Heaviest cock or cockerel, W. C. Shortridge, Indianapolis, Ind	\$2
Heaviest hen or pullet, W. C. Shortridge, Indianapolis	2
Brood of chicks under 1 week old, pure breed, G. A. Danley, Indianapolis . .	3
Special premium offered by Indiana Farmer Company for best pen of chickens, G. A. Danley, Indianapolis, Ind., silver cup.	5
Pair of Wyandotte chicks, J. C. Bridge, Logansport, Ind	3
Pair black Java chicks, Stanton & Wells, Greenwood, Johnson county, Ind. .	3

 AGRICULTURAL DEPARTMENT.

 H. LATOURETTE, Superintendent.

BOOK XXVIII.—*Vegetables.*

Three cauliflowers, John Marvel, Royalton, Boone county, Ind	\$2
Six broccoli, second premium, John Marvel, Royalton, Boone county, Ind . .	1
Six vegetable eggs, Daniel Elwanger, Indianapolis, Ind	2
Second premium, T. J. Quick, Columbus, Ind	1
Six cucumbers, Daniel Elwanger, Indianapolis, Ind	2
Second premium, W. A. Ennis, Clermont, Marion county, Ind	1
Peck white beans, J. H. Thomas, Lawrence, Marion county, Ind	2
Second premium, John Marvel, Royalton, Boone county, Ind.	1
Two quarts Lima beans, John Marvel, Royalton, Boone county, Ind.	2
Second premium, J. H. Thomas, Lawrence, Ind	1
Half gallon garden peas (dry), John Marvel, Royalton, Ind	2
Second premium, T. J. Quick, Columbus, Ind	1
Half gallon field peas (dry), J. F. Mendenhall, Indianapolis, Ind	2
Second premium, Daniel Elwanger, Indianapolis, Ind	1
Half peck peppers for pickling, John Marvel, Royalton, Ind	2
Second premium, J. H. Thomas, Lawrence, Ind	1
Peck of tomatoes, J. H. Herrin, Lawrence, Ind	2
Second premium, T. J. Quick, Columbus, Ind	
Collection of tomatoes, John Marvel, Royalton, Ind	5
Second, T. J. Quick, Columbus, Ind	3
Half dozen ears of green sweet corn, J. H. Thomas, Lawrence, Ind	2
Second, J. A. Merriman, Lawrence, Ind	1
Half peck of dry sweet corn, J. A. Merriman, Lawrence, Ind	2
Second, J. H. Thomas, Lawrence, Ind	1

BOOK XXVIII—Vegetables—Continued.

Three squashes of any kind, John Marvel, Royalton, Ind	\$2
Second, S. H. Hays, Elizabethtown, O	1
Three pumpkins, J. H. Thomas, Lawrence, Ind	2
Second, John Marvel, Royalton, Ind	1
Three drumhead cabbages, John Marvel, Royalton, Ind	2
Second, J. H. Thomas, Lawrence, Ind	1
Three flat Dutch cabbages, John Marvel, Royalton, Ind	2
Second, J. H. Thomas, Lawrence, Ind	1
Three head cabbage, any kind, John Marvel, Royalton, Ind	2
Second, J. H. Thomas, Lawrence, Ind	1
Dozen stalks celery, John Marvel, Royalton, Ind	2
Second, Daniel Elwanger, Indianapolis, Ind	1
Collection of vegetables by one amateur exhibiter, John Marvel, Royalton, Ind	10
Second, M. D. Ellis, Worthington, Ind	5
Collection of vegetables by one professional exhibiter, Daniel Elwanger, Indianapolis, Ind	10
Second, J. A. Merriman, Lawrence, Ind	5

BOOK XXIX—Root Crops.

Half bushel of turnips, Daniel Elwanger, Indianapolis, Ind	\$2
Second, J. H. Thomas, Lawrence, Marion county, Ind	1
Dozen parsnips, H. T. Adams, Onward P. O., Cass county, Ind	2
Second, John Marvel, Royalton, Boone county, Ind	1
Dozen radishes, John Marvel, Royalton, Boone county, Ind	2
Second, T. J. Quick, Columbus, Ind	1
Dozen carrots, John Marvel, Royalton, Ind	2
Second, H. T. Adams, Onward P. O., Cass county, Ind	1
Dozen roots salsify, John Marvel, Royalton, Ind	2
Second, T. J. Quick, Columbus, Ind	1
Dozen horseradish, Daniel Elwanger, Indianapolis, Ind	2
Second, T. J. Quick, Columbus, Ind	1
Half dozen red beets, H. T. Adams, Onward P. O., Cass Co., Ind	2
Second, John Marvel, Royalton, Boone Co., Ind	1
Half dozen turnip beets, M. D. Ellis, Worthington, Ind	2
Second, Frank Williamson, Zionsville	1
Half dozen sugar beets, W. F. Christian, Jr., Indianapolis, Ind	2
Second, M. D. Ellis, Worthington, Ind	1
Half peck of red onions, W. J. Carleton, Southport, Ind	2
Second, M. D. Ellis, Worthington, Ind	1
Half peck of yellow onions, W. J. Carleton, Southport, Ind	2
Second, M. D. Ellis, Worthington, Ind	1
Half peck of white onions, S. H. Hays, Elizabethtown, Ohio	2
Second, J. H. Thomas, Lawrence, Ind	1

Dozen turnip radishes, John Marvel, Royalton, Boone county, Ind	1
Second, John Marvel, Royalton, Boone county, Ind	50c
Dozen long Radishes, John Marvel, Roylton, Ind	1
Second, Daniel Elwanger, Indianapolis, Ind	50c
Display of onions in variety and quality, Thomas Thatcher, Indianapolis, Ind.	3
Second, H. T. Adams, Onward postoffice, Cass county, Ind	1

BOOK XXX—Potatoes.

Peck of Peach Blow, Daniel W. Ronk, New Ross, Montgomery county, Ind	2
Second, John Marvel, Royalton, Ind	1
Peck of Early Rose, W. H. Hartman, Southport, Ind	2
Second, Daniel W. Ronk, New Ross, Montgomery county, Ind	1
Peck of Snowflake, Daniel W. Ronk, New Ross, Ind	2
Second, T. M. Robinson, Rock Lane, Johnson county, Ind	1
Peck of Pink Eyes, John Marvel, Royalton, Boone county, Ind	2
Second, W. A. Ennis, Clermont, Ind	1
Peck of Shaker Russets, W. A. Ennis, Clermont, Ind	2
Second, John Marvel, Royalton Ind	1
Peck of Peerless, W. A. Ennis, Clermont, Ind	2
Second, John Marvel, Royalton, Ind	1
Half bushel of sweet potatoes, H. T. Adams, Onward Postoffice, Ind	2
Second, Daniel Elwanger, Indianapolis, Ind	1
Peck early potatoes of any kind, W. H. Hartman, Southport, Ind	2
Second, H. T. Adams, Onward Postoffice, Ind	1
Peck late potatoes of any kind, W. A. Ennis, Clermont, Ind	2
Second, W. H. Hartman, Southport, Ind	1
Peck of Beauty of Hebron, Thomas Thatcher, Indianapolis, Ind	2
Second, W. A. Ennis, Clermont, Ind	1
Peck of Victor, S. H. Hays, Elizabethtown, Ohio	2
Second, Thomas Thatcher, Indianapolis, Ind	1
Peck of Burbank Seedling, H. T. Adams, Onward Postoffice, Cass county, Ind.	2
Second, W. A. Ennis, Clermont, Ind	1
Peck of Mammoth pearl, S. H. Hays, Elizabethtown, Ohio	2
Second, E. B. Staton, Indianapolis, Ind	1
Collection of Irish potatoes, not less than five varieties, H. T. Adams, Onward P. O., Cass county, Ind	5
Second, W. A. Ennis, Clermont, Ind	2

BOOK XXXI—Seeds and Grains.

Half bushel early Dentfield corn, J. A. Heavenridge, Liberty, Union county, Indiana	5
Second, John Marvel, Royalton, Boone county, Ind	2
Half bushel yellow corn, in the ear, Isaac Smock, Southport, Ind	5

Second, J. A. Heavenridge, Liberty, Ind	2
Half bushel white corn, in ear, E. B. Staton, Indianapolis, Ind	5
Second, W. A. Robins & Co., Greensburg, Ind	2
Half bushel corn, any color, J. A. Heavenridge, Liberty, Ind	5
Second, W. C. Smock, Indianapolis, Ind	2
Half bushel hominy corn, S. H. Hays, Elizabethtown, Ohio	2
Display and greatest variety of corn, all kinds, not less than one-half gallon each variety, John Marvel, Royalton, Ind	10
Display and greatest variety of wheat, all kinds, not less than one-half gallon each variety, W. A. Ennis, Clermont, Ind	10
Half bushel white wheat, James Riley, Thorntown, Ohio	5
Second, S. H. Hays, Elizabethtown, Ohio	2
Half bushel red wheat, J. A. Heavenridge, Liberty, Ind	5
Second, E. S. Folsom, Indianapolis, Ind	2
Half bushel spring wheat, W. A. Ennis, Clermont, Ind	5
Half bushel rye, E. A. Eickhoff, Indianapolis, Ind	2
Half bushel of oats, James Riley, Thorntown, Ind	2
Half bushel buckwheat, John Marvel, Royalton, Ind	2
Half bushel barley, S. H. Hays, Elizabethtown, Ohio	2
Half bushel flax seed, J. A. Heavenridge, Liberty, Ind	2
Half bushel millet seed, J. A. Heavenridge, Liberty, Ind	2
Half bushel timothy seed, John Marvel, Royalton, Boone county, Ind	2
Half bushel orchard grass seed, J. F. Mendenhall, Indianapolis, Ind	2
Half bushel Kentucky blue grass seed, J. F. Mendenhall, Indianapolis, Ind	2
Half bushel English blue grass seed, J. F. Mendenhall, Indianapolis, Ind	2
Half bushel red clover seed, G. W. Beamen, Traders' Point.	2
Half bushel English clover seed, W. A. Ennis, Clermont, Ind.	2
Sample 10 pounds broom corn, Herman Eickhoff, Indianapolis, Ind.	2
Collections of grains and vegetables by any county or local society, W. B. Flick, Secretary, Lawrence, Ind	25
Second, J. H. Thomas, Superintendent, Lawrence, Ind	12
Special premium offered by Indiana Farmer Co. for best half bushel corn, G. A. Stanton, Greenwood, Ind	5

BOOK XXXII—Butter, Cheese and Honey.

Five packages of creamery butter, not less than 25 pounds each, C. M. Coats & Co., Indianapolis, Ind	\$15
Second, Arthur Jordan, Indianapolis, Ind	8
Three packages of dairy butter, not less than 15 pounds each, C. M. Coats & Co., Indianapolis, Ind	10
Five factory cheese, not less than 30 pounds each, Arthur Jordan, Indianapolis, Ind.	15
Second, J. E. Thompson, Waterloo, Dekalb county, Ind	8

Three dairy cheese, not less than 20 pounds each, C. M. Coats & Co., Indianapolis, Ind.	10
Second, W. H. Broadbudd, Connersville, Ind.	5
Comb honey in the most marketable shape, not less than 20 pounds, Alfred Cox, White Lick, Boone county, Ind.	4
Second, Dougherty & McKee, Indianapolis, Ind.	2
Extracted honey in the most marketable shape, Dougherty & McKee, Indianapolis, Ind.	4
Second, Alfred Cox, White Lick, Boone county, Ind.	2
Display of honey, the product of one apiary of the present year, Alfred Cox, White Lick, Boone county, Ind.	4
Second, Dougherty & McKee, Indianapolis, Ind.	2
Display of wax, not less than 10 pounds, Dougherty & McKee, Indianapolis, Ind.	2
Display of apiarian supplies, Dougherty & McKee, Indianapolis, Ind.	4
Apparatus for the manufacture of comb foundation, to include all necessary articles for its manufacture, Dougherty & McKee, Indianapolis, Ind.	4
Comb foundation for use in the brood chamber, Dougherty & McKee, Indianapolis, Ind.	2
Comb foundation for surplus honey, Dougherty & McKee, Indianapolis	2
Honey extractor, Dougherty & McKee, Indianapolis, Ind.	2
Wax extractor, Dougherty & McKee, Indianapolis, Ind.	2
Honey vinegar, not less than one gallon, Dougherty & McKee, Indianapolis, Ind.	2
Section for surplus honey, Dougherty & McKee, Indianapolis, Ind.	2
Display retail package extracted honey, Alfred Cox, White Lick, Boone county, Ind.	2
Second, Dougherty & McKee, Indianapolis, Ind.	2
Honey cake or cakes, Mrs. Francis A. Cox, White Lick, Boone county, Ind. . .	2
Best 2 gallons sorghum syrup, W. A. Ennis, Clermont, Ind.	4

Special Premium by Cornish, Curtis & Co., of Fort Atkinson, Wis., Manufacturers of Dairy Supplies.

Best package of farm made butter, not less than 10 pounds, John Marvel, Royaltan, Ind. No. 2 Lever Rectangular Churn.

BOOK XXXIII—Cured Meats, Groceries, Flour, Crackers.

Barrel Flour, Scott Prindle, Carbondale, Jackson county, Ill. . . . Diploma.

HORTICULTURAL.

JOHN M. GRAHAM, Superintendent.

BOOK XXXIV—*Amateur List.*

APPLES.

Twenty varieties of apples, W. B. Flick, Lawrence, Marion county, Ind . . .	\$15
Twelve varieties of apples, S. H. Hays, Elizabethtown, Ohio	10
Six varieties of apples, S. McIntire, Milton, Trumbull county, Ky	5
Plate of Maiden Blush, S. H. Hays, Elizabethtown, Ohio	1
Plate of Smith Cider, S. McIntire, Milton, Trumbull county, Ky	1
Plate of Ben Davis, S. McIntire, Milton, Trumbull county, Ky	1
Plate of Rome Beauty, W. B. Flick, Lawrence, Ind	1
Plate of Winesap, S. H. Hays, Elizabethtown, Ohio	1
Plate of Rambo, W. B. Flick, Lawrence, Ind	1
Plate of Yellow Bellflower, W. B. Flick, Lawrence, Ind	1
Plate of Fallawater Tulpehocken, John Marvel, Royalton, Ind	1
Plate of Fall Pippin, W. B. Flick, Lawrence, Ind	1
Plate of Clayton, W. B. Flick, Lawrence, Ind	1
Plate of White Pippin, S. McIntire, Milton, Trumbull county, Ky	1
Plate of Baldwin, W. B. Flick, Lawrence, Ind	1
Plate of Northern Spy, S. McIntire, Milton, Trumbull county, Ky	1
Plate of Vandever Pippin, John Marvel, Royalton, Ind	1
Plate of King of Thompkin's County, S. H. Hays, Elizabetown, Ohio	1

PEARS.

Ten varieties of pears, S. McIntire, Milton, Trumbull county, Ky	10
Five varieties of autumn pears, W. B. Flick, Lawrence, Ind	5

PEACHES.

Five varieties of peaches, S. McIntire, Milton, Ky.	5
Five varieties of grapes, Sylvester Johnson, Irvington, Ind.	5
Three varieties of grapes, Sylvester Johnson, Irvington, Ind.	3
Five clusters of grapes any kind, Alex. Heron, city	2
Show of quinces not less than twelve specimens, S. McIntire, Milton, Trumbull county, Ky	3
Display of fruits of all kinds, W. B. Flick, Lawrence, Ind.	25
Display of fruits by any county or local society, Cass County Agricultural Society	25
Second, W. B. Flick, Secretary, Lawrence, Ind	20
Three watermelons, W. A. Ennis, Clermont, Ind	5

Three nutmeg melons, J. A. Merriman, Lawrence, Ind	3
Second, W. A. Ennis, Clermont, Ind	2
Largest striped Gypsy melon, W. A. Ennis, Clermont, Ind.	2
Largest Icing melon, W. A. Ennis, Clermont, Ind	2
Collection of melons, all kinds, Thomas Thatcher, Indianapolis, Ind	10

BOOK XXXV—Professional List.

APPLES.

Twenty varieties of apples, M. Fickle, Galveston, Ind	Diploma and \$15
Twelve varieties of apples, M. Fickle, Galveston, Ind	Diploma and 10
Six varieties of apples, M. Fickle, Galveston, Ind	Diploma and 5

PEARS.

Ten varieties of pears, E. A. Eickhoff, Indianapolis, Ind	Diploma and 10
Four varieties of autumn pears, Albertson & Hobbs, Bridgeport, Ind	Diploma and 5

GRAPES.

Three varieties of grapes, E. A. Eickhoff, Indianapolis.	Diploma and 3
One variety of grapes, ten clusters, E. A. Eickhoff, Indianapolis .	Diploma and 2

QUINCES.

Collection of quinces, not less than twelve specimens, E. A. Eickhoff, Indianapolis.	Diploma and 3
Display of fruits of all kinds, M. Fickle, Galveston, Ind	Diploma and 25
Collection of nursery stock arranged for exhibition adjoining Floral Hall, Albertson & Hobbs, Bridgeport, Ind	Diploma and 20

BOOK XXXVI—Professional List.

General collection of plants, Bertermann Bros., Indianapolis.	\$20
Second, G. Lang, Indianapolis.	10
Collection of foliage plants, Bertermann Bros., Indianapolis	6
Second, G. Lang, Indianapolis.	3
Collection of lycopods and ferns, Bertermann Bros., Indianapolis, Ind	6
Second, G. Lang, Indianapolis, Ind	3
Display and variety of climbers, G. Lang, Indianapolis, Ind	5
Second, Bertermann Bros., Indianapolis, Ind	2
Collection of begonias, G. Lang, Indianapolis, Ind	6
Second, Bertermann Bros., Indianapolis, Ind	3
Collection of cacti, aloes, agaves, Bertermann Bros., Indianapolis, Ind	8

Second, G. Lang, Indianapolis, Ind	4
Collection of geraniums, Bertermann Bros., Indianapolis, Ind	6
Second, G. Lang, Indianapolis, Ind	3
Three rustic stands, filled, Bertermann Bros., Indianapolis, Ind	6
Three hanging baskets, filled, Chas. Reiman & Co., Indianapolis, Ind	4
Second, Bertermann Bros., Indianapolis, Ind	2
Collection of palms, Bertermann Bros., Indianapolis, Ind	10
Second, G. Lang, Indianapolis, Ind	5
Collection alocacias and caladmus, Bertermann Bros., Indianapolis, Ind	10
Second, G. Lang, Indianapolis, Ind	5
Collection cannas, Bertermann Bros., Indianapolis, Ind	6
Arranged Wardian case, Bertermann Bros., Indianapolis, Ind	4
Second, Chas. Reiman, Indianapolis, Ind	2
Floral display by any one individual or firm, Bertermann Bros., Indianapolis, Ind	200
Second, Chas. Reiman & Co., Indianapolis, Ind	100
Collection of loose cut flowers, G. Lang, Indianapolis, Ind	10
Second, Bertermann Bros., Indianapolis, Ind	5
Display and arrangement of cut roses, Bertermann Bros., Indianapolis, Ind	5
Ten funeral designs, Chas. Reiman & Co., Indianapolis, Ind	20
Second, Bertermann Bros., Indianapolis, Ind	10
Collection basket designs, not less than ten pieces, Bertermann Bros., Indianapolis, Ind	20
Collection boquets, not less than ten, Bertermann Bros., Indianapolis, Ind	10

Amateur List.

Collection of plants, Mrs. G. A. Danley, Indianapolis, Ind	15
Second, Frank Williamson, Zionsville, Ind	7
Collection begonias, not less than ten varieties, Mrs. G. A. Danley, Indianapolis, Ind	8
Second, Frank Williamson, Zionsville, Ind	4
Agave, Frank Williamson, Zionsville	2
Second, Mrs. G. A. Danley, Indianapolis, Ind	1
Rustic stand, filled, Mrs. G. A. Danley, Indianapolis	4
Second, Ely Bronson, Indianapolis	2
Night blooming Cereus, Mrs. Frank Williamson, Zionsville, Ind	2
Alocacia, Mrs. Frank Williamson, Zionsville, Ind	2
Canna, Mrs. Frank Williamson, Zionsville, Ind	2
Second, Ely Bronson, Indianapolis	1
Hanging basket, filled, Mrs. G. A. Danley, Indianapolis	2
Second, Ely Bronson, Indianapolis	1
Collection of cut flowers, Mrs. Frank Williamson, Zionsville, Ind	8
Second, Mrs. G. A. Danley, Indianapolis	4
Collection cut geraniums, Mrs. G. A. Danley, Indianapolis	4
Second, Mrs. Frank Williamson, Zionsville, Ind	2

Collection cut roses, Mrs. G. A. Danley, Indianapolis	8
Second, Ely Bronson, Indianapolis	4
Collection of verbenas, Mrs. G. A. Danley, Indianapolis	4
Second, Mrs. Frank Williamson, Zionsville, Ind.	2

GEOLOGY AND NATURAL HISTORY.

JOHN COLLETT, Superintendent.

BOOK XXXVII.

General collection of fossils, G. R. Green, New Albany, Ind	\$8
Second, Fletcher Noe, Indianapolis	4
General collection of minerals, Fletcher M. Noe, Indianapolis	Diploma
General collection of shells, Fletcher M. Noe, Indianapolis	Diploma
Collection of skinned birds, Fletcher M. Noe, Indianapolis.	\$5 and diploma
Collection of stuffed and mounted birds, animals and reptiles, illustrating the natural history of the State, Fletcher M. Noe, Indianapolis.	20
Second, Fletcher M. Noe, Indianapolis	15
Collection diurnal Lepidoptera, Fletcher M. Noe, Indianapolis	5
Second, F. A. Biedenmeister, Indianapolis	2
Collection nocturnal Lepidoptera, Fletcher M. Noe, Indianapolis	5
Second, F. A. Biedenmeister, Indianapolis	2
Collection of insects, Fletcher M. Noe, Indianapolis	3
Second, Ralph St. J. Perry, Indianapolis	2
Collections of botanical specimens, James Sproule, Indianapolis	\$3 and diploma
Second, Miss Nettie Duzan, Indianapolis	\$2 and diploma
Collection of American woods, not less than twenty-five varieties, G. W. Put- terbaugh, Greenfield, Ind	10
Second, Mary Fairfield, Indianapolis.	5
Collection of coins and medals, Louis Woerner, Indianapolis	5
Second, Fletcher M. Noe, Indianapolis	2
Collection Mound Builders (Stone Age) implements, G. R. Green, New Albany, Ind	10
Second, Fletcher M. Noe, Indianapolis	8
Collection of curiosities, to consist of relics of the late war and of historical interest, Fletcher M. Noe, Indianapolis.	5
Second, G. R. Green, New Albany, Ind	3

BOOK XXVIII—Geology.

Block coal, Cobb & Branham, Indianapolis	Diploma
Caking coal, Cobb & Branham, Indianapolis	Diploma
Cannel coal, Cobb & Branham, Indianapolis	Diploma
Coke, Cobb & Branham, Indianapolis	Diploma
Collection and variety of coal from any one county in Indiana, Cobb & Branham, Indianapolis	\$8

WOMAN'S DEPARTMENT.

MRS. MARY E. HAGGART, Superintendent.

BOOK XXXIX--Old Ladies' Department.

All-wool coverlet, Mrs. Nancy Montgomery, Shelbyville, Ind	\$2
Cotton coverlet, Mrs. Nancy Montgomery, Shelbyville, Ind.	2
Worsted quilt, Mrs. Jane Shull, Vevay, Ind.	2
Second, Mrs. Ann Lewis, Indianapolis	1
Calico quilt, Mrs. Malinda Cook, Broad Ripple	2
Second, Mrs. S. Lee, Indianapolis	1
Rug, Mrs. Pauline Colescott, Shelbyville, Ind.	2
Second, Mrs. M. F. Shera, Indianapolis.	1
Counterpane, knit, Mrs. A. Swart, Brunswick Farm, Marion county, Ind. . .	2
Second, Mrs. Mary Ann Miller, Ladoga, Ind	1
Pair of woolen stockings or socks, hand knit, Mrs. Ann Lewis, Indianapolis .	1
Pair of cotton stockings or socks, hand knit, Mrs. S. Lee, Indianapolis. . . .	1
Pair of linen stockings, hand knit, Mrs. M. F. Shera, Indianapolis	1
Hemstitching, Mrs. Nancy Montgomery, Shelbyville.	2
Second, Mrs. M. F. Shera, Indianapolis.	1
Lace display, hand made, Mrs. Siddall, Indianapolis.	3
Second, Mrs. M. F. Shera, Indianapolis.	2
Embroidery display, Mrs. John Roberts, Brookville, Ind.	2
Second, Mrs. John Roberts, Brookville, Ind.	1
Fancy articles display, Mrs. Pauline Colescott, Shelbyville	2
Second, Mrs. E. Hughes, Indianapolis	1
Collection of old-fashioned garments, Mrs. Callinan, Indianapolis	3
Second, Mrs. A. F. Whelan, Indianapolis	2
Collection of household relics, Mrs. M. F. Shera, Indianapolis, Ind	3
Second, Mrs. Siddel, Indianapolis, Ind	2

BOOK XL—Knitting and Crochet Work.

Infants knit or crochet socks, Mrs. A. G. Jackson, Vevay, Switzerland county, Ind	1
Pair of silk mittens, hand-knit, Mrs. M. M. Finch, Indianapolis, Ind.	2
Pair of silk stockings, hand-knit, Mrs. M. M. Finch, Indianapolis, Ind	3
Knit or crochet shawl, Nettie W. Sabine, Indianapolis, Ind.	2
Knit or crochet hood, Mrs. E. B. Kirk, Shelbyville, Ind	1
Thread crochet baby cap, Miss Alice McQuiddy, Indianapolis, Ind	1
Knit or crochet fascinator, Miss Mary R. Heron, Indianapolis, Ind	1
Crochet sacque, Mrs. B. F. Green, Columbus, Ohio	1
Crochet cotton tidy, Jenny B. Dewey, Indianapolis, Ind	1
Afghan, Mrs. B. C. Miller, Ladoga, Ind.	3
Second, Mrs. Dr. R. H. Homer.	2
Afghan, infants, Mrs. Josie Swift, Indianapolis, Ind	2
Second, Mrs. T. G. Caldwell, Indianapolis, Ind	1
Display of fancy knitting, Mrs. C. C. Burns, Greensburg, Ind.	1
Display of crochet buttons, Mrs. M. F. Owens, Indianapolis, Ind	2
Counterpane crochet, Miss Anna Voila, Indianapolis, Ind.	2

BOOK XLI—Lace Work.

Point lace display, Miss Mollie Gall, Indianapolis, Ind.	5
Second, Mrs. M. S. Brown, Indianapolis, Ind	3
Point lace, specimen, Mrs. A. G. Jackson, Vevay, Ind	3
Second, Mrs. Shoptaugh, Princeton, Ind.	2
Guipure lace, specimen, Mrs. C. C. Burns, Greensburg, Ind	3
Darning on net, specimen, Mrs. J. Leek, Indianapolis, Ind	2
Second, Mrs. S. Lee, Indianapolis, Ind	1
Applique lace, specimen, Mrs. M. Posz, Shelbyville, Ind	2
Second, Mrs. C. W. Wright, Crawfordsville, Ind	1
Crochet lace display, Mrs. H. R. Gillette, Indianapolis, Ind.	2
Knit lace display, Miss May Minich, Indianapolis, Ind.	2
Tatting display, Mrs. W. P. Diggs, Wentzville, Mo.	2
Netted guipure lace display, Mrs. Shoptaugh, Princeton, Ind	2
Breton lace display, Mrs. E. M. Rittenhouse, Indianapolis	2
Macrame lace display, Miss Gussie Swart, Indianapolis	2
Second, Mrs. C. C. Burns, Greensburg, Ind	1
Feather edge specimen, Miss Annie Mullholland, Indianapolis	2

BOOK XLII—Embroidery.

Embroidery with linen floss, Mrs. M. Posz, Shelbyville, Ind	2
Embroidery cotton display, Mrs. C. B. Muchmore, Shelbyville, Ind	2

Embroidery child's dress, Mrs. Harlan, Greensburg, Ind	2
Second, Mrs. C. B. Muchmore, Shelbyville, Ind	1
Embroidery table set, Mrs. C. B. Muchmore, Shelbyville, Ind	2
Embroidery bed set, Mrs. J. Cambern, Rushville, Ind	2
Embroidery handkerchief, Mrs. M. Posz, Shelbyville, Ind	1
Embroidery silk specimen, Mrs. A. B. Yohn, Indianapolis	2
Second, Mrs. J. Cambern, Rushville, Ind	1
Embroidery silk stockings, Mrs. B. C. Miller, Ladoga, Ind	1
Embroidery silk sacque, Mrs. M. M. Finch, Indianapolis	2
Embroidery silk skirt, Miss Cook, Greensburg, Ind	2
Embroidery, silk, infant's shawl, Mrs. Josie Swift, Indianapolis	2
Second, Mrs. Will Hughes, Indianapolis	1
Embroidery skirt, worsted, Mrs. A. G. Jackson, Vevay, Ind	2
Embroidery table cover, Miss Vinnedge, Indianapolis	3
Second, Mrs. Howlett, Indianapolis	2
Embroidery ottoman cover, Mrs. J. H. Wright, Indianapolis	2
Second, Mrs. A. J. Jackson, Vevay, Ind	1
Embroidery chair cover, Mrs. J. Leibhardt, Knightstown, Ind	2
Embroidery sofa cushion, Weller Smith, Indianapolis	2
Second, Mrs. T. L. Griffis, Connersville, Ind	1
Embroidery toilet cushion, Mrs. B. F. Green, Columbus, O	2
Second, Miss Vinnedge, Indianapolis	1
Embroidery slippers, Mrs. Dr. Stewart, Anderson, Ind	2
Second, Mrs. M. L. Stiles, Indianapolis	1
Embroidery applique white specimen, Mrs. C. B. Muchmore, Shelbyville, Ind	2
Second, Mrs. J. E. Howe, Muncie, Ind	1
Embroidery applique colored specimen, Mrs. N. D. Frazee, Indianapolis	2
Second, Mrs. Harlan, Greensburg, Ind	1
Embroidery outline display, Mrs. T. L. Griffis, Connersville, Ind	2
Embroidery, Kensington, specimen, Mrs. I. H. Kiersted, Indianapolis	3
Second, Miss Vinnedge, Indianapolis	2
Third, Mrs. C. W. Wright, Crawfordsville	1
Embroidery, tapestry, display, Mrs. E. J. Tarleton, Indianapolis	3
Second, Mrs. C. B. Miller, Ladoga	2
Embroidery, tapestry, specimen, Mrs. M. Posz, Shelbyville, Ind	2
Embroidery art in colors, display, Mrs. B. F. Green, Columbus, O . . . Diploma	
Embroidery art in colors, specimen, Mrs. B. F. Green, Columbus, O	3
Second, Mrs. B. F. Green, Columbus, O	2
Third, Mrs. A. M. Robertson, Indianapolis	1
Embroidery, chenille, specimen, Mrs. C. B. Miller, Ladoga, Ind	3
Second, Miss M. C. Rariden, Indianapolis	2
Embroidery, arasene, specimen, Mrs. Kate Bryden, New York city	3
Second, Mrs. Allen Sammons, Indianapolis	2
Embroidery, high art needlework, specimen, Mrs. A. M. Robertson, Indianapolis	3
Second, Mrs. Allen Sammons, Indianapolis	2

Embroidery, ribbon, specimen, Mrs. I. H. Kiersted, Indianapolis	2
Embroidery, rickrack work, display, Mrs. C. B. Muchmore, Shelbyville . . .	1
Braiding display, Mrs. J. Leibhardt, Knightstown, Ind	2

BOOK XLIII—Sewing, Machine and Hand.

Machine work, five articles, Mrs. A. G. Jackson, Vevay, Ind	3
Machine work, shirt, Mrs. N. McCulloch, Madison, Ind.	1
Dress, worsted or silk, Mrs. Dr. Stewart, Anderson, Ind. Diploma and	5
Second, Mrs. Fortner, Greensburg, Ind	3
Ladies' business suit, Mrs. S. Grove, Anderson, Ind Diploma and	5
Pair of pants, Mrs. Dr. R. H. Homer, Knightstown, Ind	2
Boy's suit, Mrs. A. G. Jackson, Vevay, Ind	2
Quilt, white, hand sewing, Mrs. A. G. Jackson, Vevay, Ind.	2
Quilt, silk, needlework, Mrs. C. W. Jenkins, Indianapolis, Ind	3
Second, Mrs. Elizabeth Hotlett, Arcadia, Ind	2
Buttonholes, display on different materials, Mrs. Tillie Thompson, Indian-	
apolis, Ind	2
Second, Mrs. C. C. Burns, Indianapolis, Ind	1
Hemstitching, specimen, Miss M. C. Rariden, Indianapolis, Ind.	2
Drawn work, Miss Vinnedge, Indianapolis, Ind	2
Infant's wardrobe, most sensible and neat, Mrs. Fannie B. Shideler, Indian-	
apolis, Ind	5

MISCELLANEOUS.

BOOK XLIV.

Wax flowers, Mrs. Ellen Newman, Indianapolis, Ind	\$3
Wax fruit, Susie E. Martin, Indianapolis, Ind	3
Wax work, ornamental, Mrs. Ellen Newman, Indianapolis, Ind	3
Bead work display, Mrs. M. Posz, Shelbyville, Ind	2
Card receiver, Mrs. Dr. R. H. Homer, Knightstown, Ind	1
Handkerchief box, Mrs. Albert B. Yohn, Indianapolis, Ind.	2
Second, Mrs. Allen Sammons, Indianapolis, Ind	1
Glove box, Mrs. Albert B. Yohn, Indianapolis, Ind.	1
Sea moss ornament, Mrs. A. M. Noe, Indianapolis, Ind	2
Autumn leaves, ornamental display, Mrs. M. A. Callinan, Indianapolis, Ind .	1
Fish scale ornaments, Mrs. Dr. R. H. Homer, Knightstown, Ind	1
Toilet Cushion, not embroidered, Mrs. Julia Ragland, Indianapolis, Ind . . .	2
Second, Mrs. E. B. Kirk, Shelbyville, Ind	1

Sofa pillow, not embroidered, Mrs. M. L. Stiles, Indianapolis, Ind	2
Second, Mrs. A. G. Selman, Indianapolis, Ind	1
Lamp mats, fancy, Mrs. C. C. Burns, Greensburg, Ind	1
Toilet mats, Mrs. Dr. R. H. Homer, Knightstown, Ind	2
Infant's nursery basket, Mrs. Fannie B. Shideler, Indianapolis, Ind	2
Picture tapestry work, Mrs. A. McCulloch, Madison, Ind	2
Chair stripes, Mrs. C. B. Miller, Ladoga, Ind	2
Lambrequins, Mrs. J. E. Howe, Muncie, Ind	2
Tidy, not crochet, Mrs. C. C. Burns, Greensburg, Ind	2
Second, Mrs. Lydia Spies, Lafayette, Ind	1
Minerals, collection named, Miss Julia Newbell, New Albany, Ind	5
Shells, collection named, Mrs. Eugene, Thompson, Indianapolis, Ind	5
Butterflies, collection named, Miss Mary Fairfield, Indianapolis, Ind	3
Upholstery work specimen, Miss Jessie Hughes, Indianapolis, Ind.	3
Laundried shirt, by a woman not in employ of laundry, Mrs. N. A. Ford, Indianapolis, Ind	1
Exhibit in silk culture, Miss Lizzie Hoffman, Indianapolis, Ind	3
Badges and regalia display, Mrs. W. C. Anderson, Indianapolis, Ind . Dip. and	3
Ten yards rag carpet, Mrs. Ada B. Wolf, Indianapolis, Ind	2
Rug, Mrs. Rose Ramsey, Indianapolis	2
Second premium, D. C. Butterfield, Peru, Indiana	1
Special premium offered by the Indiana Farmer Co., for the best lot of silk grown in Indiana the present year, Miss Lizzie Hoffman, Indianapolis	5

BOOK XLV—Dry Goods, Millinery, Etc.

Display of hair goods and work, Miss Eudora Trickett, Edinburg, Indiana,	Diploma.
Hair jewelry, Mrs Dr. R. H. Homer, Knightstown, Indiana	Diploma.

BOOK XLVI—Art Work.

Fret sawing display, Miss Mattie Tarbell, Indianapolis	2
Inlaid work display, Miss Mattie Tarbell, Indianapolis	3
Alto relievo work, designed and executed display, Miss Sue Ketcham, Indianapolis	3
Etching on cloth display, Miss M. C. Rariden, Indianapolis	1
Pencil drawings, original display, Miss M. C. Rariden, Indianapolis	3
Second premium, Miss Yohn, Indianapolis	2
Crayon drawings display, Mrs. Enos B. Reed, Indianapolis	3
Second premium, Nellie New, Indianapolis	2
Modeling in clay display, Miss Sue Ketcham, Indianapolis	5
Second premium, Ada Comingore, Indianapolis	3
Pottery made and decorated by exhibiter, display, Miss Sue Ketcham, Indianapolis	3

Pottery specimen, Miss Sue Ketcham, Indianapolis	2
Painting on china, under glaze, display, Miss Sue Ketcham, Indianapolis . .	5
Second premium, Ada Comingor, Indianapolis	3
Painting on china, over glaze, display, Mrs. Sarah Bolton, Indianapolis . . .	5
Second premium, Miss Sue Ketcham, Indianapolis	3
Painting on tiles, mineral display, Miss Sue Ketcham, Indianapolis	5
Second premium, Miss Ada Comingore, Indianapolis	3
Painting on tiles, water display, Mrs. W. C. Anderson, Indianapolis	5
Second, Mrs. B. C. Miller, Ladoga, Ind	3
Painting on slate, display, Mrs. C. A. Howland, Indianapolis	3
Painting on wood, display, Miss Sue Ketcham, Indianapolis	5
Second premium, Miss Yohn, Indianapolis	3
Painting on silk or satin, display, Mrs. Kate Bryden, New York City	5
Second premium, Miss Sue Ketcham, Indianapolis	3
Painting on silk or satin, specimen, Miss C. L. Palmer, Michigan City, Ind .	3
Painting on velvet, colored display, Miss M. C. Rariden, Indianapolis	3
Second, Miss Sue Ketcham, Indianapolis	2
Painting on velvet, white display, Mrs. A. R. Thompson, Indianapolis	3
Painted fan, Mary R. Heron, Indianapolis	2
Painted toilet set, Mrs. A. R. Thompson, Indianapolis	2
Second, Miss Mary R. Heron, Indianapolis	1
Painted fancy cards, display, Miss Yohn, Indianapolis	3
Second, Julia A. Brown, Indianapolis	2
Painting on panels, water colors, Mrs. S. A. Leet, Indianapolis	5
Second, Mrs. S. A. Leet, Indianapolis	3
Third, Mrs. S. A. Leet, Indianapolis	2
Painting on panels, oil, Miss M. K. Rariden, Indianapolis	5
Second, Miss Mary R. Heron, Indianapolis	3
Third, Mrs. W. H. Craft, Indianapolis	2
Portraits in oil, display, Mrs. C. B. Ingraham, Indianapolis	10
Second, Julia Ludington, Indianapolis	5
Landscapes in oil, display, Mrs. Julia Ludington, Indianapolis	10
Second, Mrs. John Julian, Indianapolis	5
Water color paintings, display, Miss Sue Ketcham, Indianapolis	10
Second, Ada Comingor, Indianapolis	5

XLVII—Culinary Articles.

Butter, 5 pounds, Mrs. Frank P. Johnson, Mapleton, Ind.	\$3
Second, Mrs. Wm. Hartman, Southport, Ind	2
Honey in comb, 5 pounds, Louisa C. Brown, Indianapolis	3
Second, V. L. Hutchinson, Worthington, Ind	2
Bread, loaf, wheat, yeast, Mrs. Lucy Beggs, N. Indianapolis	2
Second, Miss Eliza Seigmund, Mapleton, Ind	1

Bread, wheat, salt-rising, Mrs. G. A. Danley, Indianapolis	2
Second, Mrs. Amanda Hurd, Indianapolis	1
Graham bread, yeast, Mrs. G. A. Danley, Indianapolis	2
Second, Miss Ida V. White, Indianapolis	1
Graham bread, salt-rising, Mrs. G. A. Danley, Indianapolis	2
Second, Mollie Clark, Thorntown, Ind	1
Bread, corn, Mollie Clark, Thorntown, Ind	1
Corn pone, Mrs. N. A. Ford, Indianapolis	1
Rusks, Miss Eliza Siegmund, Mapleton	1
Crullers, Mrs. Scott, Anderson, Ind	1
Pound cake, Miss Mary Schrader, Indianapolis	2
Second, Mrs. Tillie Thompson, Indianapolis	1
Fruit cake, Mrs. Frank P. Johnson, Mapleton, Ind	3
Second, Mrs. Grove, Anderson, Ind	2
Fancy cake, Miss Eliza Siegmund, Mapleton, Ind	3
Second, Mrs. Sallie J. Howard, Indianapolis, Ind	2
Jellies, collection, Mrs. M. E. Davidson, Lawrence, Ind	4
Second, Mrs. M. J. Flick, Lawrence, Ind	2
Preserves collection, not less than one pint each, Mrs. M. J. Flick, Lawrence, Ind	3
Second, Mrs. Allen Sammons, Indianapolis, Ind	2
Fruit butters, collection, not less than one pint each, Mrs. M. J. Flick, Lawrence, Ind	3
Second, Mrs. J. L. Vanansdall, Indianapolis, Ind	2
Pickels collection, Mrs. Sallie Howard, Indianapolis, Ind	1
Canned fruits collection, not less than one pint each, Mrs. M. E. Dawson, Lawrence, Ind	5
Second, Mrs. Mary E. Newhouse, Lawrence, Ind	3
Maple molasses, half gallon, Mrs. Frank P. Johnson, Mapleton, Ind	1
Maple sugar, five pounds, Mrs. N. A. Ford, Indianapolis, Ind	1
Tomato catsup, not less than one pint, Mrs. V. L. Hutchinson, Worthington, Ind	1

BOOK XLVIII—Agricultural, Etc.

Display of grains, Mrs. G. A. Danley, Indianapolis, Ind	3
Display of vegetables, Mrs. G. A. Danley, Indianapolis, Ind	4

BOOK XLIX—Children's Department.

Loaf of wheat bread, yeast, Maria Fletcher, Indianapolis, Ind	1
Second, Gertie Coburn, Indianapolis, Ind	50c
Loaf of wheat bread, salt-rising, Mollie Ford, Indianapolis, Ind	1
Pound cake, Edith Dawson, Lawrence, Ind	2
Second, Gertie Darling, North Indianapolis, Ind	1

Fancy cake, Lina Bond, Indianapolis, Ind	2
Second, Matilda Laube, Indianapolis, Ind	1
Pickles collection, Annie B. Marvel, Royaltown, Ind	1
Patch-work, plain, Myla Louise Coburn, Indianapolis, Ind	1
Patch-work, fancy, Harry Cashus, Indianapolis, Ind	1
Hand-sewing, shirt, Gertrude Muchmore, Shelbyville, Ind	1
Hand-sewing, garment, Lillie Homer, Knightstown, Ind	1
Patching on old garment, display, Lillie Lee, Vevay, Ind	1
Darning, on old garment, Flora Kirk, Shelbyville, Ind	
Button hole, display, different materials, Mollie Ford, Indianapolis, Ind	2
Second, Kittie Thompson, Indianapolis, Ind	1
Embroidery, cotton, Lillie Lee, Vevay, Ind	2
Second, Anna Posz, Shelbyville, Ind	1
Embroidery, darning, on net, Miss Lillie Homer, Knightstown, Ind	1
Embroidery, worsted, specimen, Flora Kirk, Shelbyville, Ind	2
Second, Lillie Lee, Vevay, Ind	1
Embroidery, silk, specimen, Anna Posz, Shelbyville, Ind	2
Second, Callie Tarkleson, Anderson, Ind	1
Crochet work, display, Callie Tarkleson, Anderson, Ind	2
Second, Nellie Coutant, Crawfordsville, Ind.	1
Pair knit stockings, Callie Tarkleson, Anderson, Ind	1
Pair knit mittens, Callie Tarkleson, Anderson, Ind.	1
Doll wardrobe, Gertrude Muchmore, Shelbyville, Ind	1
Tidy, Nina E. Brown, Lafayette, Ind.	2
Second, Minnie Miller, Ladoga, Ind	1
Pincushion, Flora Kirk, Shelbyville, Ind	1
Toilet set, Gertrude Muchmore, Shelbyville, Ind.	2
Second, Flora Kirk, Shelbyville, Ind.	1
Picture in needlework, J. M. Monroe, Indianapolis, Ind	2
Perforated cardboard, display, Lillie Homer, Knightstown, Ind	2
Second, Callie Tarkleson, Anderson, Ind	1
Painting on wood, display, Maudie Pierson, Indianapolis, Ind	2
Pencil drawing, original, Mary Ingraham, Indianapolis, Ind	2
Second, Blanchie Cookingham, Indianapolis, Ind	1
Pencil drawing, copy, Mary Ingraham, Indianapolis, Ind.	1
Fret sawing, display, Eddie Homer, Knightstown, Ind.	2
Carved wood work, display, Eddie Homer, Knightstown, Ind	2
Autumn leaves, ornamental display, Edith Dawson, Lawrence, Ind	1
Woods, collection, named, Alice Fairfield, Indianapolis, Ind	2
Shells, collection, named, Willie King, Indianapolis, Ind	1
Minerals, collection, named, Willie King, Indianapolis, Ind	2
Butterflies, collection, Asa Bloomer, Indianapolis, Ind.	3
Second, Walter Smith, Indianapolis, Ind	2
Insect collection, Gavin L. Payne, Indianapolis, Ind.	2
Moths, collection, Willie King, Indianapolis, Ind	3

Second, Arnold Riegger, Indianapolis, Ind	2
Collection of stamps, Willie King, Indianapolis, Ind	1
Collection of curiosities, Willie King, Indianapolis, Ind	1
Collection of old coins, Willie King, Indianapolis, Ind	2
Architectural design, Blanchie Cookingham, Indianapolis, Ind	2

REPORT OF COMMITTEE

ON

ARTICLES ENTERED IN BOOK A

And Exhibited at the Indiana State Fair for 1883,

ON WHICH NO PREMIUMS WERE OFFERED.

We find eighty-seven entries in this book, mainly of stationary, traction and portable farm engines, threshing machinery, saw mills, tile and brick machines, and various other articles of kindred character.

Before going into a description of the various articles entered in this class some observations on the general character of the more prominent entries may not be out of place.

The large exhibit in this department proves that manufacturers of machinery connected either directly or indirectly with agricultural pursuits, have a high appreciation of the opportunity afforded them by the annual fairs of the State, to meet their customers and exhibit and explain to them the uses and peculiarities of their machines and improvements. Nor can the husbandman afford to miss such an opportunity of seeing the progress made in the improvement of machines and implements for his use. He can not otherwise spend a little holiday, that is of itself so beneficial, after the summer's work is done, as well as in posting himself up in the progress of improvement in the means of increasing the products of the soil, in deciding what stock is best suited to his circumstances, and what machines and implements are best adapted to his wants. He may expect to find at these fairs the most advanced ideas of progress and improvement in every department related to agriculture, and, having them all before him at one time, be able to compare their relative merits and decide intelligently as to those best suited to his purposes.

In stationary engines we find two that differ very materially from the ordinary kinds and from each other, which are noticed in proper place. In those of the ordinary type there is nothing special to note.

Of farm engines the traction seems to be gaining favor in greater ratio than other kinds. These engines have been greatly improved in the last few years and are far in advance of the cumbrous contrivances of a few years ago. As now made they are not unreasonably heavy, and will haul heavy loads over almost any road at satisfactory speed, and are easily managed and controlled by persons possessing only a moderate degree of skill in such matters. They may be guided either by their own steering apparatus, or by a pair of horses. They were well represented at this fair by specimens from all the leading manufacturers of the country. In their steering apparatus these engines all have essentially the same arrangement, but in other respects each differs in some particulars from all the rest. These differences are noted in proper place.

In the mounted farm engine the principal changes made lately seem to be in mounting them higher on the boiler to get the fly-wheel, or pulley, out of the way of the truck wheels in making turns, and many are mounted on top of the boiler and use the center crank, that is, a crank is formed in the center of the shaft for the connecting rod, to divide the strain and wear between the two journals and giving a chance to put a pulley or fly-wheel on either or both ends, with the disadvantage of making it a little more top-heavy. We note also the rapidly increasing use of inspirators for supplying water to the boilers, enabling them to keep up water whether the engine is running or not, and some are furnished with both pump and inspirator, which is a most excellent way, as by the use of the pump the heat in the exhaust steam is generally utilized in heating the feed water on its way to the boiler, thus saving fuel, and when the pump is standing or disabled the inspirator is ready for use.

The rapidly increasing use of steam on the farm has led to the production of engines that do the work for which they were designed in a very economical and satisfactory manner. Great care is manifested in making them safe in use, by giving a wide margin of strength in the boiler, and in furnishing the best appliances for supplying water; reliable gauges for showing the quantity of water and pressure of steam; in the use of safety valves that are certain and prompt in their action, and are not easily tampered with; and in putting fusible plugs in the crown sheets that melt and cause the fire to be put out if bare of water. And to guard against fire, spark arresters are fixed in the stacks that prevent the escape of sparks that could do mischief. Under these circumstances, these engines are practically safe in the hands of persons of ordinary prudence and intelligence, with a very little experience, so that disaster can only occur in their use as the result of gross recklessness or neglect.

Of threshing machines there was a splendid exhibit, comprising all the various styles in general use, and from all the leading manufacturers of the country. In these there is nothing new in the manner of separating the grain from the head in which it grew. All seem satisfied with the cylinder and concave as they have been for several years; and all have some convenient way of adjusting the concave to

suit the condition of the grain or straw to be threshed. The main difference to be found in the various machines is in the means of separating and saving any grain that may be entangled in the straw, and prevent it being carried to the straw stack and lost. For this purpose all use to some extent, what is known as the "vibrator" principle, either entirely, or in combination with other ingenious contrivances to secure the desired result. No two are alike; each has some peculiar arrangements which differ from all others, and which is claimed to be the very best. Any of these separators look as though they would do their work in a very satisfactory manner; but nothing short of perfection will satisfy the exacting demands of the day, and this point if not already reached must be very nearly gained.

Of saw mills, all kinds were represented, including the band, and standard circular, for cutting large timber with heavy power, and the smaller pony and portable circular, and mulay for cutting smaller timber with light power. Of these the smaller mills seem to have been growing in favor more rapidly. This is probably owing to the large number of farm engines scattered over the country, which furnish sufficient power to drive a small mill that is capable of cutting into valuable lumber timber that would otherwise be, comparatively, of little value. They are easily managed and require only a small force of hands to operate them, and are especially adapted to the use of those who do not make sawing an exclusive business.

Of tile and brick machines, there were four on exhibition, representing as many styles, from the simplest to the most complicated, from three different manufacturers. The manufacturers of these mills seem to be satisfied with their products, but have been adding greatly to their strength and wearing qualities by a liberal use of steel and chilled iron, and in making all parts heavier. As now made, they produce good work, and are well calculated to stand the extraordinary strains sometimes given them by the accidental introduction of foreign matter such as stones, etc.

The differences and peculiarities of all these machines are noticed in their proper place.

A very commendable and noteworthy improvement in the manufacture of machinery that is now becoming general, is in making the parts interchangeable, so that a given part of a machine will fit and work perfectly in any other machine of that pattern, thus enabling any one to replace any part that may be worn out or destroyed by accident without unnecessary delay or cost, and to keep on hand such extras as are most likely to be needed; thus guarding against the loss of valuable time in the busy season. Another great improvement is found in the increasing use of steel, to secure more even and better wearing qualities, and greater rigidity, without unnecessary weight.

The "Common Sense Engine Co.," Springfield, Ohio, exhibited three of their engines. These have upright tubular boilers, and are designed for use, mainly, where only a small power is required. They occupy very little space, and are as simple as possible in construction, having fewer parts than usual, but are effective in operation. The parts are all easily accessible, are convenient to handle, are well made and well adapted in every way to the uses for which they were designed. They are made either attached or detached.

Vinton Iron Works, Indianapolis, Ind., exhibited an Atlas Works detached, or semi-fixed portable engine. These engines have the usual locomotive boiler with the round or circular bottom, and use a super-heater. The engine is placed on the skids under the boiler, making a most compact and economical arrangement that is very steady when running.

Also, one of their "E" pony saw mills, with upper saw attached, that requires only ten to fifteen horse power to operate it efficiently, and is so constructed as to be very conveniently and easily handled.

Also, one of their "D" saw mills. This is a large double mill with some new features; one of these is in the arrangement of the friction pully which will always accommodate itself to the face of the feed, or backing pulleys. There is also a valuable improvement in the tightener of the upper saw belt, which operates automatically by means of a spring in taking up the slack at the time it is needed. They have steel mandrils with long bearings, and use a new saw guide that is moved without a wrench, and does not endanger the hands of the sawyer. The Zschech head-blocks are used, which set to any thickness with ease and accuracy. These mills are first class in material, workmanship, and in all their appointments.

They also have on exhibition a "Potts" hydraulic Brick and Tile mill. This is new in construction, and some of its peculiarities are that the pressure is obtained by hydraulic power, which can be regulated to any desired extent. The tempering of the clay may go on independent of the working of other parts of the mill. The bottom of the pug mill is open and allows clay to be fed to the pressure box without obstruction, the shaft going only to the bottom of the pug mill. And to prevent the mill being broken by working too stiff clay, or by stones or other foreign matter getting into it, there is a safety valve on the pipe connected with the cylinder that will not allow a sufficient pressure to break it.

They also exhibit another Power Tile Mill that is worked by a combination of gearing, the clay being tempered as in the hydraulic machine, and the plunger driven by a cam. It is heavy, strong and compact.

W. F. Leach, Franklin, Ind., exhibits a tile carrier for tile machines, which consists, to quote his circular, "of an endless chain of flat bases, with side projectional gauges to regulate the lengths of the tile and to carry the cutter frame along with the tile while cutting." The two elevated sides of this endless apron spring toward each other, on a little pressure, and the opposite sections are connected together by any suitable flexible material, which is allowed to sag a little in the middle, and when the weight of the tile comes on this connecting material the sides spring toward each other, wrapping it around them sufficiently to support and keep them in proper shape; and also allows it to accommodate itself to various sizes and shapes of tile. The carrier will deliver large tiles on end so as to be carried away without pressing out of shape in handling.

Nichols, Shepard & Co., Battle Creek, Mich., exhibit a ten-horse power traction engine. This engine has several points worthy of note. Among these may be mentioned that the boiler is made of the best quality of iron, double riveted, with extra heavy flue sheets and copper thimbles at flue ends. It is propelled on the road by

means of a train of gearing that applies the power at the rim of the traction wheels, giving no strain on spokes; and is also furnished with the differential gear, so useful in making turns. The engine is of the best material and workmanship. The slide valve is operated by the pinion reverse gearing, which is an efficient and most durable means of giving forward or reverse motion to the engine. The reversing lever, throttle valve, guiding wheel, and other parts necessary to be handled in running are convenient to the engineer when standing on the platform. The smoke stack is provided with an improved bonnet, that gives safety from fire.

They also exhibit a ten-horse power portable engine, which is similar in all respects to the traction, except it has no propelling or guiding attachments.

Frick & Co., Waynesboro', Pennsylvania, exhibit their "Eclipse" traction engine. This engine has some very distinctive and excellent features. Among the more conspicuous, it will be noticed that the main frame of the engine consists of two wrought-iron sills that are not rigidly connected to the boiler, and are not affected by its expansion or contraction, and which extend back far enough to support the platform for the engineer. The fire-box end of the boiler is carried by a wrought-iron band passing around under it, and being riveted to these sills. The back end of the engine frame is also supported on vertical side plates riveted to these sills, while the forward end rests on the boiler, and is connected to it by an expansion joint, which allows expansion and contraction without strain. The power is applied to the traction wheels by an elastic compensating gear, which relieves the gear from uneven strains in going over rough roads and from sudden shocks. The axle of the driving wheels is of heavy cast steel, and goes across behind the fire-box, and is supported by lighter boxes, locomotive fashion. The link is used to govern the direction of running.

Seymour, Sabin & Co., Stillwater, Michigan, by A. C. Hamilton, Indianapolis, exhibit a ten-horse power portable engine, which is mounted on a good truck. The engine is mounted on top of boiler, and has center crank, and is in every way a good, well made engine, without any very novel features.

M. & J. Rumely, Laporte, Ind., exhibit a ten-horse power traction engine, which is in all respects a good one. The boiler is well made, of the best material, having a large dome, and the flues are of the locomotive semi-steel. The engine is placed well-back, placing the weight mainly on the driving wheels. Both the locomotive reverse-link motion and the Marsh patent valve gear are used, making it very convenient to start, stop or reverse. The guides are covered by a shield that protects them from dust, either on the road or in the stack yard. Power is transmitted to traction wheels by a straight train of gearing to cog wheels bolted to their hubs. The general arrangement of the engine is as simple as possible, and the workmanship and material are first class, and will give good satisfaction to those using it.

Atlas Works, Indianapolis, have a twenty-five-horse power engine at work driving both lines of shafting in Reaper Hall, which is similar in all respects to one noticed before, only in being larger.

R. R. Rouse, Indianapolis, Agent, exhibits the "Monitor" engine. This is an

upright mounted portable engine, supported on springs. The workmanship and material are good, though there is no special novelty to note.

C. Aultman & Co., Canton, Ohio, exhibit their ten horse-power "Monitor" Traction Engine. This has an upright boiler, with engine attached. This form, though not in so general use as the horizontal, has some advantages that should not be overlooked, especially in a traction engine, the prominent one being that the steep grades they may sometimes be required to go down, are liable to leave the crown sheet bare of water in the horizontal, which is a contingency that can hardly occur in the vertical boiler. These boilers are made in the usual form, of the best material and workmanship. A damper is placed over the flues to equalize the draft among them, and an independent pump is used to supply water. The engine is well made, steel being used in all the wearing parts, and receives steam through a dry pipe. Power to move on the road is transmitted to the traction wheels by means of a sprocket chain and wheel, which connects, by means of compensating gear, with the traction wheels. This "jack-in-the-box," or compensating gear, allows one wheel to go faster than the other in making turns, and yet gives each wheel its share of power from the engine. Uses the link reverse motion.

Steam Engine Co., Watertown, N. Y., by J. D. Truett, Indianapolis. This is a ten horse-power engine, on top of boiler with center crank, mounted on a good truck, and is the same in all respects as one noticed before.

A. C. Hamilton, Indianapolis, also exhibits the same make of engine.

N. W. Manufacturing and Car Co., Stillwater, Minn., by A. C. Hamilton, Indianapolis, exhibits a traction engine that has some peculiarities worth noting. The boiler is of the style known as the marine fire-box pattern, and has a large direct flue below, and smaller return flues above, and is intended to use either wood, coal, or straw as fuel; has an extra heavy crown sheet, five-eighths thick. Power for moving on the road is transmitted directly to the counter shaft by an endless chain. By the use of friction pulleys the engine may be got in motion without moving the traction wheels, or the wheels may be stopped without stopping the engine. Has an effective reversing rig, and is very simple in construction, conveniently handled, and well made in all respects.

They also exhibit a ten horse-power portable, which is similar to the traction in construction of the boiler and otherwise. It has an extension of the saddle at the forward end that allows it to be turned without the truck wheel interfering with the band wheel.

Springfield Engine and Thresher Co., Springfield, O., by Meal & Bradley, Indianapolis, exhibits an eight horse-power portable engine, which is well and simply constructed, without any novel features. The pump is especially simple in construction, and accessible for repairs when needed.

Sinker, Davis & Co., Indianapolis, Ind., have a band saw for cutting lumber from large logs, which came on the ground late, and requiring considerable time to erect and adjust, there was very little time or opportunity to see much of it. It uses the variable friction feed, and the tension of the saw is kept uniform by means of weights.

A twenty-five horse-power engine is set to drive the band saw. It has the camel back boiler, which allows a greater number of flues, and consequently gives greater heating surface than others. The engine is of their usual style of good workmanship, with locomotive guides and cross-head, and without any special novelty to note.

The E. M. Birdsall Co., Auburn, N. Y., exhibit their ten horse-power traction engine, which is mounted on springs. The traction wheels are very light and strong, and have openings through their face to enable to hold well in sand or mud. The boiler is of the wagon-top style, with the side seams double riveted; and is supplied with water by an inspirator. The fire-box is supplied with shaking grates. Engine is well made and working parts well balanced. Uses only one eccentric for forward and reverse motion. It has two throttles, one at forward end from which it takes steam going up hill, and takes steam from the dome at the rear at other times to secure dry steam.

They also exhibit a ten horse-power portable engine, which is similar to the Traction, without propelling or steering attachments.

They also exhibit a portable saw-mill on wheels. This mill is a novelty in nearly all its parts. The more striking are, that the saw frame is mounted on a wagon or truck, suitable for moving it about over the country; and that the saw in cutting travels along the length of the log, instead of the log being fed up to it, as is usual. The saw cuts with its lower parts, with the grain of the timber, instead of with the upper part and against the grain, as in the common arrangement. It is claimed that by cutting with the grain much less power is required to do a given amount of work; and that with the aid of their device for raising and lowering the log, they can slab and square a larger log with fifty-two inch saw than can be done with a sixty-four inch saw with the old arrangement. The mill is conveniently handled, the saw stopping automatically at any desired point in giging back; and the set and feed levers are convenient to the sawyer. A further and important claim for this mill is that it can be set up and got into operation in few hours after getting to its set.

Atlas Works, by Fletcher & Thomas, Indianapolis, exhibit a ten horse-power traction engine that is well gotten up in all respects. Power to move on the road is transmitted by means of an endless chain. The engine is on top of boiler, with center crank. Uses the link movement for reversing. It is a first class machine without special novelty.

Eagle Machine Works, Indianapolis, exhibit a ten horse-power traction engine, which is of the best style of workmanship and material. Power is applied to traction wheels by means of a train of gearing. The slide valve of the engine is operated by the Marsh gearing, which works well, and is the most durable way of getting reverse movement.

They also exhibit a twelve horse-power portable engine that is handsome in design, and of excellent workmanship, that will give good satisfaction in use.

Chandler & Taylor, Indianapolis, exhibited a twenty-five horse-power engine, which is connected to the boiler by means of a bed-plate of the Corliss style. The

cylinder is placed at the smoke-box end of the boiler, and receives steam from a dry-pipe which is connected with a super-heating dome in the smoke-box by means of which, it is claimed, the steam is superheated by the heat passed through the flues. The workmanship is superior, and the style and proportions such as to attract attention.

They have also two ten horse-power portable engines similar to the above, one of them detached and placed on skids under the boiler. These engines were both running; one of them driving their tile mill, and the other their mulay saw-mill.

They also exhibit their side-cutting mulay saw-mill in operation. The main frame is entirely of iron, and all the bearings are faced up true. There is a peculiarity in the connection of the pitman to the saw which allows it to clear itself going up, but brings it down vertically. It is well gotten up in all respects, and well adapted to use where only a small power is available.

They also exhibit their "Eureka" tile-mill. This is a new style of mill, and is more simple in construction than many others. It consists of a tempering drum, of boiler iron, which is surmounted by a heavy hopper-shaped cast iron ring, which supports the bridgetree for the upper end of shaft, to which the knives are attached for cutting and tempering the clay. These allow the mud to descend by its own gravity, and keeps the mud chamber below always filled. This mud chamber has a projection on one side, forming the pressure-box, to which the dies are attached; and the mud is forced into this box and through the dies by means of a curved pressure wing, secured to the shaft, which gathers and forces the material from the mud chamber into it.

Sinker, Davis & Co., Indianapolis, have a ten horse-power engine running in the hall driving a corn-mill, which is the same in all respects, except in size, as the one driving the band saw.

They have also a 14x20 stationary engine, with a new design of bed plate, making it very substantial. The slide valve is operated direct from the eccentric.

Also a 10x20 engine of the usual style.

They have also a pony saw-mill of the usual construction.

They have also on exhibition a set of Staley and a set of Meiner head-blocks for saw-mills. These are so well and favorably known to saw-mill men as to need no description. In connection with these head-blocks is the Morse dog, which is a valuable addition to them.

Also a lot of various sizes of the Bellis governor. These are stop governors, and are now well known to give first-class regulation to engines.

They have also an exhibit of mill machinery of handsome designs and superior workmanship.

They also exhibit a Burns improved hominy mill. This mill is simple in construction and easily operated; it is claimed that it will make four or five barrels of hominy per hour, and that it will make a barrel with from five to six bushels of corn, and will work corn in any condition.

The designs, workmanship and material of this whole exhibit are very good and will compare favorably with any other.

A. G. Chandler & Co., Indianapolis, exhibit a small Harvey engine. This is a

recent invention not yet introduced to the public, and is new and novel in its construction and operation. The more noticeable features of this engine are that, although operated by pistons and cranks, it has no dead centers—will start from any point and needs no fly-wheel; that it is perfectly balanced, the pressure always being equal in opposite directions so that it will sit steady when running without anchorage. And that it is claimed that while it has a continuous high pressure of steam, that it gets full benefit of expansion. It is operated by a single slide valve and eccentric, is capable of high speed and occupies very little space.

Westinghouse Machine Co., Pittsburgh, Pa., by Lewis Metesser, agent, Indianapolis, exhibited their Westinghouse engine at work driving a line of shafting in main hall. This is a comparatively new style of engine that has been before the public only a short time, and is essentially different from others in many particulars, the more prominent being in the use of two vertical cylinders with pistons connecting, by rods, with a crank shaft below. These cylinders receive steam alternately, only at their upper ends, their lower ends opening into the crank case or bed to which they are attached. The admission of steam is controlled by a single piston valve that is perfectly balanced, and which is operated by an eccentric. The exhaust is permitted by the pistons uncovering large exhaust ports near the lower ends of their strokes. The crank shaft has a small fly-wheel on either end and runs in boxes at the ends of the crank case; this crank case is like a box and is kept partly filled with water, and a quantity of oil is kept floating on this water which is made to lubricate all the working parts by the motion of the cranks in running, which it does perfectly without any waste of oil. All the working parts are inclosed, avoiding dust and danger from accidents. No packing is used anywhere, and it requires very little attention in running as the boxes of the connecting rods may become much worn without pounding, as the pressure is always from one side, thus saving the time and trouble necessary in other engines to keep boxes so nicely adjusted as to neither heat nor pound. These engines prove themselves capable of running at astonishingly high speed, and are especially adapted to use where a well balanced power, occupying little space and having little weight in proportion to power, is required.

B. S. Constant, Peru, Indiana, exhibits a saw gauge and guide which is readily adjustable to any width, and keeps the guide always parallel with the saw. It is set by a lever, and the gauge is graduated to show the width of stuff without measuring. It is a valuable addition to the saw table.

He also exhibits the Hendry vise. This is a cast iron vise, intended especially for wood work, to which wood faces may be attached to prevent bruising the work. It is so constructed that it may be attached either above, at the side, or underneath the bench, and by an attachment, be made to serve as a tail screw—very useful and convenient.

American Paper Pulley Co., Indianapolis, exhibited a lot of their pulleys made of paper. They are made of any size under five feet diameter. The exhibitors claim very important advantages for these pulleys, especially in belt adhesion, which they

claim is forty per cent. better than cast iron. They are much lighter than iron, and, if durable, will be an acquisition, especially in high speed machinery.

Gustavus H. Zschech, Indianapolis, exhibits his feed water heater and purifier, which, it is claimed, will, with the aid of the exhaust steam from an engine, remove all the impurities held in solution by the water. It consists of a vertical cylinder of light boiler iron from seven to nine feet high, and from twenty to forty-eight inches in diameter, according to the requirements of the engine. Inside of this is another one reaching down from near the top to below where the water is admitted, which is four inches smaller, leaving a space of two inches all around, and is connected to outside shell at its bottom. Water is admitted at bottom of this space, and is heated as it raises to the top where it overflows, falling onto a series of cones, or discs, that spread it in a thin strata over them and cause it to trickle from one to another in small streams, so that it is exposed in the best possible manner to the action of the exhaust steam, which is admitted below and fills all the space, heating the water very hot, and causing it to precipitate its impurities on its way to the bottom, where it passes through an asbestos felt filter to an outer apartment, formed by an outer shell, leaving four or five inches space between them, from which feed water for the boiler is taken. Any mud or other deposit carried to the bottom is blown out through a pipe provided for that purpose.

J. W. Penfield, Willoughby, O., exhibits one of his brick and tile machines. This is a plunger mill, worked by a cam, which it is claimed, is the simplest, strongest, and most practical means of working a mill. The machinery of this mill is very heavy, and is made of the best material for the purpose. The main shaft, cam, friction-roller, plunger, cut-off plate, as well as the knives for tempering the clay, are all made of steel. The plunger head is furnished with a self-adjusting scraper that prevents leakage. The main shaft is supported by four bearings, and the gearing is all very heavy and strong. In short, these mills evidently possess the greatest capacity for endurance, as well as for producing the best work. In connection with the mill are the necessary attachments for its successful working, as clay crusher with chilled iron rollers, elevator for supplying material to the mill, etc. He has also a spring wheel-barrow, of great capacity, that is certainly a great aid in handling the products of the mill.

T. M. Nagle, Erie, Pa., exhibits a twenty horse-power engine, on skids. The boiler has the round or circular bottom to fire-box. The engine bed is stationary box style, on top of boiler, engine has locomotive slides and center crank, and is well made, and in all respects a good engine.

J. I. Case Machine Co., Racine, Wis., by *Russell & Merrifield, Agents, Indianapolis*, exhibit a ten horse-power mounted portable engine, which is mounted on an excellent truck, the wheels are iron, broad tread, and very large. The front axle is trussed to give rigidity and strength. The engine is an excellent one, without any thing new especially noteworthy.

Russell & Co., Massillon, O., by *Russell & Merrifield, Agents, Indianapolis*, exhibits a ten horse-power traction engine. The power to move on the road is transmitted to the traction wheels by means of a train of gearing. The indispensable compensating

gear is supplied to aid in making turns. A friction pulley is cast on one of the wheels, which is encircled by a strap connected to a lever, which makes an efficient brake. The tires of the front wheels have a raised center to prevent lateral slipping. The engine is well constructed in every way, and uses the Marsh reverse gear for operating the slide valve.

The A. F. & M. Works, Anderson, Ind., by Russell & Merrifield, Agents, Indianapolis, exhibit a ten horse-power portable engine that is simple and excellent in design and workmanship, though not differing materially from others, except that it is furnished with a hand force pump, by which the boiler may be supplied in case the pump worked by the engine is disabled in any way.

M. & J. Rumley, Laporte, Ind., by George Mowery, Agent, Indianapolis, exhibited a ten horse-power portable engine that is simple in construction, efficient in operation, and has a well-earned reputation as a reliable and durable engine, using steam with economy.

A. Showalter, Pataskala, Ohio, exhibited his *Ætna* scroll saw and wood worker combined. This little machine, with its attachments, supplies nearly all the machinery needed in a carpenter or cabinet maker's shop. These attachments are very readily attached or removed, and consist in scroll and circular saws, turning lathe and former for molding edges of every description. A cutter head on saw mandrel will carry bits up to an inch and a half, which may be used for jointing, rebating or plowing, etc. The machine is operated by foot or other power; the foot power is applied by a swinging, horizontal movement, and much easier and better than the usual up and down treadle.

National Saw Guard Co., Indianapolis, exhibited their device for preventing the accidents that occur so often in using the insatiable buzz saw. It consists in a cover or hood over the exposed part of the saw, suspended from an arm above in such a way as to allow the guard to raise freely on the lumber as it passes through, and then drops back on the table as soon as it has passed. Connected with it is a stop that prevents any backward movement of the stuff sawed.

J. H. Hamlet, Indianapolis, exhibited his self-setting gauge for dimension work, which has a graduated quadrant by means of which the guide is set to cut any width at once without measuring. It is a valuable and convenient addition to the saw table.

Robinson's Machine Works, Richmond, Ind., exhibited their ten horse-power mounted portable engine. The boiler has the circular water bottom and extra large dome. The engine is well constructed, has locomotive guides and automatic stop governor. The blast from the exhaust steam is regulated by an adjustable inverted cone to give the draft required.

Gaar, Scott & Co., Richmond, Ind., exhibited a ten horse-power traction engine, which transmits power to the traction wheels by means of a straight train of gearing, having small pinions on engine shaft and at driving wheels, giving the engine ample power to move with its train over any road it may be safe to go over. They

have a patent improvement on the drum the guiding chain winds on, which consists in a spiral groove or corrugation, for the chain to wind in which keeps it always taut so there is no slack to take up in changing the direction. The differential gear is provided to help in turning. The engine is superior in workmanship and material, without anything especially new, and uses the locomotive link reverse.

SEPARATORS.

J. I. Case, Racine, Wis., by Russell & Merrifield, Agents, Indianapolis, exhibit one of their ten horse "Agitator" separators. In this machine the concave is brought well up in front in order to throw the grain down through the guard as much as possible. A beater, close to the cylinder, passes the straw to a rack of open slats which has a series of elevations on it; this rack has an upward and forward motion, to facilitate the separation of the grain and the passage of the straw out. The grain is received on a sheet-iron conveyor below, which extends from under the concave to shoe of fan, and has a sieve that works off short straws, etc., preventing sieves in shoe from clogging. The elevator is in the form of an open box, with a notched bottom, and is operated by a crank and supported by wooden springs, which gives an elastic shake that prevents the possibility of clogging. Has a good clover-hulling attachment, and means of cleaning all kinds of seeds.

Russell & Co., Massillon, O., by Russell & Merrifield, Agents, Indianapolis, exhibit their "New Massillon" separator, in which the straw from the cylinder passes over a grate, through which much of the grain goes to the lower table, and is then passed onto the separating table, bearers preventing it from passing in bunches over the table, which is made of notched strips with a slat bottom, the notches are so spaced that they open up every part of the straw in passing over it; this table is given a sort of jerky motion by a crank, which works the straw out and facilitates the separation of the grain. After passing the second beater the straw is handled by their "kicker" arrangement, by which a movement closely imitating that of a man shaking it out with a fork is produced. The grain having passed to the lower table, is passed from it over a large corrugated riddle that lets the grain through freely to the riddles, but passes the trash over. Very little blast is used; and it is claimed that the grain is perfectly cleaned without a kernel ever being blown over. It has also a good clover-hulling attachment.

Upton Manufacturing Co., Battle Creek, Michigan, by Russell & Merrifield, agents, Indianapolis, exhibit their Combination Separator. In this machine there is a combination of the vibrator and straw chain. The grain and straw are first thrown on a vibrating rack where the main part of the separation is done, and is then passed onto a straw chain where it is completed. The grain falling below is conducted to the riddles and cleaned in the usual way. It is a well built machine without much novelty.

Robinson Machine Works, Richmond, Indiana, exhibit their "Bonanza" Separator, which is a new candidate for public favor, and seems to be worthy of a full

share. It is of the vibrating style. The vibrating rack is divided in halves to make them lighter and easier to operate. Back of the cylinder is a picker to facilitate the movement of the straw and shake out the grain; it then passes to an agitating device which effectually separates the remaining grain from the straw; the grain falling below is conveyed to the riddles and thoroughly cleaned. It has a good clover-hulling attachment, and will thresh and clean all the grains and seeds required. All the separating machinery is operated by one crank shaft.

Gaar, Scott & Co., Richmond, Indiana, exhibit their "Fearless" Separator. In this machine the straw is elevated as it leaves the cylinder by a straw lifter onto an agitating rack, leaving a wide open space below for the grain, which falls down on the conveyor. The back end of this rack is elevated, and the straw drops down from it onto another rack with back end elevated in the same way, which completes the separation of grain from among the straw, an inclined floor under this last rack bringing any grain that may be carried that far, back to the conveyor and riddles. There is also another separating device over the riddles that lets the grain through, and passes the trash over. A leading idea in this machine is to keep the grain and straw separate from the beginning. The grain by its greater momentum leaves the concave in a tangent line from the cylinder, while the straw is more entangled, and carried further around. Advantage is taken of this as above described. It has a good clover-hulling attachment, and is fitted out to thresh and clean all kinds of grain and seeds.

Birdsall Manufacturing Co., South Bend, Indiana, exhibit their "Monitor Junior" Clover Huller, which has an undershot thresher with an adjustable concave. Just back of the cylinder is a picker working over a wire screen concave which separates, to a great extent, the straw from the chaff. It is then passed onto a slatted bolt where any remaining chaff is passed through to a shaker; this shaker or bolt is perforated with holes that only allow the chaff and seed balls to pass through to the conveyor which conveys them to the hulling cylinder. The hulling cylinder and the concave, which extends more than half way around it, are covered by a tempered steel rasp which completes the hulling. The chaff and seed are then passed to the mill by a raddle belt. The shoe has an end shake and allows the seed to pass through; it is then taken by a conveyor and elevator which delivers it to a recleaning attachment which perfects the cleaning, and delivers the good clean seed to one sack and the blasted seed and dirt to another.

C. Aultman & Co., Canton, Ohio, exhibit Miller's New Model Vibrating Thresher. On leaving the cylinder the straw and grain are received on a short carrier, which takes it up and delivers it to a gang of beaters, which knocks the straw about in all directions; it then falls to a vibrating table where the straw is kept opened up and sent out onto an elevated extension, which, if any grain should yet be left in the straw, separates it. This thorough agitation separates the grain perfectly from the straw; it is then delivered at the front end of the riddles, where it meets the full blast from the fan, which rids it at once of most of the chaff, leaving the riddles more free to finish the cleaning. These riddles need not be changed for different kinds of grain, as all kinds are well cleaned by the same riddles.

Victor Double Huller Clover Machine, Newark, Ohio, Machine Co. This huller has an undershot open cylinder and uses teeth, or rubbers, with angular grooves in their sides, for both cylinder and concave, that have their front edges thinner than the back, so that the clearance between them is lessened as they pass each other. The seed pods are rubbed off by this cylinder, and a portion of the seeds rubbed out. The seed being separated from the stems, or straw, is passed through a lower huller, which is similar to the upper, only the teeth are shorter and wider; here the process of getting the seed out of the pod is completed. The straw and seed from the upper cylinder falls on a slatted floor, through the slots of which wire fingers work, which works the straw out of the machine, and by the same movement takes the seed and chaff which falls through back to the lower huller, and is thence delivered onto a riddle, and is then elevated into a cleaning mill, where it is perfectly cleaned, the best seed being delivered to one bag, while the tail-ends are to another.

The E. M. Birdsall, Auburn, N. Y., by J. F. Getty, General Agent, Indianapolis, exhibits a vibrator separator. A peculiarity of this machine is in its having fewer teeth in the cylinder than usual, and in the bars, or lags, in which the teeth are inserted being narrower so as to work as beaters. It is claimed that this gets the grain out of the head perfectly and runs much lighter than those with more teeth. In the separation of the grain from the straw two pans or floors are used that have sheet iron bottoms, and on these five wide, notched strips are placed on edge to keep the straw off the bottom and to keep it open and loose for the separation of the grain, as well as to work it along out of the machine. These are worked by a double crank, vibrating them in opposite directions, so as to balance, the first pan reaching forward under the open concave to catch the grain separated there. Just back of the cylinder is a kicker to keep the straw from it and to aid in the separation. In its passage over these pans the straw is also agitated by three sets of lifters as a further precaution against any grain going off with the straw. The grain and chaff in passing back to the shoe passes over a perforated iron distributor that lets the grain through and passes the trash on. The machine has extra large riddle surface and cleans perfectly.

Eagle Machine Works, Indianapolis, have one of their "Oscillator" Separators on exhibition. In this machine, just back of the cylinder, is a revolving deflector which throws the grain and straw from the cylinder onto the oscillating floor, and creates a draft that takes the dust from the feeder. The oscillating floor is in four sections, each composed of side pieces supporting transverse slats. Their forward ends slide back and forth on a line, while the rear ends are carried by a crank shaft which gives up and down, and forward and backward motion to them; the cranks being set so that the movements of the sections balance each other. The straw after leaving the deflector passes over a series of lifting fingers, then over an overshot beater, and then on another series of fingers onto the oscillating floors, and thence to the stacker, while the grain, being separated by the beating, shaking and agitating falls to the conveyor below, and passed over a perforated screen to the riddles.

Nichols, Shepard & Co., Battle Creek, Michigan, exhibit their Vibrator Separator. In this machine there are two shakers, or vibrators, one over the other, hung on swinging suspension rods and are given a backward and forward motion in opposite directions, so they balance, by a crank shaft. The upper shaker is made with a bottom of transverse slats leaving open spaces for the grain to pass through to the lower one, and has an upwardly inclined extension at back end as an additional security against loss of grain. The lower shaker extends from under the concave to over the riddles, and has a tight floor to hold and convey the grain to the riddles; at the back end this floor is perforated to distribute grain over the riddles and has also a sheet iron extension, with lipped openings, that allows grain to pass through, but passes trash over. Over the upper shaker is a series of six sets of fingers that nearly cover it, which are inserted in a transverse bar with an arm on out ends, which is connected by a strap of leather to the frame work. The motion of the shaker gives a rocking motion to this bar, which give an up and down motion to the fingers. The grain, on leaving the cylinder is received by an adjustable guide, which conducts it to a beater which throws it down on a grate in upper shaker; it then passes on over the fingers, being shaken up and tossed by them in a way to give the best facility for the separation of the grain from it. The grain falling on lower shaker is conveyed to riddles through the perforated board and lipped extension. Has good clover hulling attachment, and is fitted to clean all kinds of grain and seeds.

Frick & Co., Waynesboro, Pennsylvania, exhibit their "Eclipse" Separator. This is a well built machine, with cast sides at the threshing cylinder to which the cylinder boxes are attached. These boxes are pivoted so as always to be in line with each other. The cylinder has wooden lags, or beaters, for holding the teeth, which are covered with iron and plated with $\frac{3}{16}$ beater iron. It is claimed that the elasticity of the wood prevents the nuts working loose on the teeth. The trunk or separating part of the machine is wider back of the cylinder, to give more room to spread the straw for separation, and has detainers on first and second rakes, which agitate and spread the straw in the best manner to secure the separation of the grain. After the separation of the grain, it is carried over the shoe and is then fed by a carding roller to be cleaned, which prevents bunching or clogging in any condition of grain. There is also a blast regulator or governor, that it is claimed will always give a regular and proper blast for cleaning. It has also a convenient bagger to which bags are attached, and by turning a valve the grain is sent to either bag.

Case & Willard, Battle Creek, Mich., by A. C. Fairbanks, Agent, Indianapolis, exhibited their new separator, "Advance." This is a new machine introduced this season, and has some excellent points. From the back end of the concave there is a slatted grate passing back and curving up, over which the straw is passed and delivered onto two beaters. Over this grate is a slatted guard forming the upper part of a chute for the straw, and over this guard is a crank shaft operating two pickers, the fingers of which work through openings between slats of guards, which also serve as strippers for them, and take the straw from the cylinder over the grate to the beaters, the grain all the time falling through the grate. From the beaters

the straw falls on to a slatted shaker, and then onto two other beaters and then on to an open riddle or carrier, which runs over agitators, keeping the straw in constant motion. The conveyor is suspended by rods from the sill to avoid any tendency to rock the machine. An independent screen is hinged at back end of conveyor to carry coarse stuff over.

M. & J. Rumley, Laporte, Ind., exhibited their new separator, which is a combination of the apron and vibrator machines, which, it is claimed, uses the good qualities and avoids the defects of both. The grain and straw on leaving the cylinder are received on an endless apron with the back end considerably elevated, which carries it under a beater near the cylinder and discharges it over another beater, from which it falls two feet onto a vibrating slatted floor, and is agitated and tossed on its way out by a series of fingers operated in the usual way. The grain passes to the riddles through a perforated floor that keeps short straw, etc., out of them.

"Minnesota Chief," by Meal & Bradley, Agents, Indianapolis, J. B. Parker, General Agent. In this machine the straw and grain are discharged from the cylinder over an iron grate through which most of the grain falls. At the back end of this grate a strip of sheet iron directs the straw to a beater which sends it onto the separating table, which consists of a slatted floor the whole length of the machine, the slats running crossways, which is given a reciprocating and upward motion by cranks. On the slats of this table shouldered wires are fixed at proper intervals to open up and help the separation of the grain from the straw. The grain falls through the grate and separating floor on to a solid table, or floor below, and is carried to the riddles by an endless grain-rake. It is claimed that neither the beater or any other part of this machine will wind or be choked by flax, or any other straw in any condition. Has clover-hulling attachment, and will thresh and clean in the best manner any grain or seed desired.

Respectfully submitted,

JOHN M. SEWARD, *Committee.*

REPORT OF COMMITTEE

ON

ARTICLES ENTERED IN BOOK C

AND

EXHIBITED AT THE INDIANA STATE FAIR OF 1883,

For Which No Premiums Were Offered.

Cooley Creamer, by John Boyd. This creamer consists of a box, or receptacle, for deep cans, lined with galvanized iron, in which the milk is submerged; the atmosphere keeping the water out of the cans. When the cream is all raised the amount of it can be observed through a graduated glass; then a slide, with a tube in it, is adjusted to correspond with the amount of cream, and the milk is drawn off leaving the cream in the cans. It is claimed that better results are obtained by the submerging process.

Wilson's Cabinet Creamer, by S. J. Wilson, Flint, Mich. This is a chest lined with galvanized iron in which peculiarly constructed cans are used. These are 5x21 inches in cross section and 20 inches deep, giving a large cooling surface in proportion to quantity of milk. The tops are roof-shaped and have openings all round for ventilation, and to cause vapors that condense on under side of it to run out of the can. The milk is drawn from the bottom, the illuminated fronts of the cans enabling a person to see when the milk is all out. Water is introduced into the chest directly under the cans. The whole cabinet is well ventilated to allow the escape of animal odors, etc.

Champion Creamery, manufactured by Dairy Implement Co., Bellows Falls, Vt., McKinney & Co., agents, Indianapolis. The tank of this creamery is ventilated through the top at each end to allow the animal odors to pass off, and the lids of the cans are also ventilated; and the bottoms are rounded and slope to the front so that any sediment settling there will come out with first milk drawn. The tank has a dead-air space between lining and outside, and is arranged to receive a continuous flow

of water from a spring or other source. A thermometer is placed in front to indicate the temperature of the water. The skimming is done by drawing the milk away at the bottom—a glass in the lower part of the can enabling one to see when all the milk is out. In the lower part is a space to be used as a refrigerator for keeping butter, cream, or other articles.

Also a Davis' swing churn. This belongs to a class of churns that produce the butter by concussion, without the use of beaters or dashers. It is hung and swung by rods at the corners and is easily operated.

Dairy Fixtures, by A. H. Reid, Philadelphia, Penn., Creamery. This is a tank lined with galvanized iron, in which two cans eight inches wide and twenty inches deep, and of length to give the required capacity are placed near the front end. The bottoms of the cans are rounded and slope to the front where a faucet is placed for drawing off the milk, a glass window just above enabling a person to see when the milk is drawn away to the cream. The lids of the cans reach down into the water, sealing them. Ice is placed in the back part of the tank and may be put around the cans. Under the tank is a chamber that may be used for preserving any perishable articles.

Also a Butter Worker. This is a tray of suitable size for holding the butter, with racks on outsides, and the butter is worked by means of a roller with a number of wings or paddles fixed on it, and has also a pinion on either end that gears into the racks. The butter to be worked is placed in this flat-bottomed tray, and the roller passed back and forth over it by means of a crank, working the butter-milk out of it in much less time and more perfectly than can be done by hand. The pinions are kept from lifting out of gear by a slide connected to the roller and passing under the racks.

Also a Self Gauging Butter Print. This is a contrivance for printing butter by which a given quantity will always be pressed into the print without weighing. The butter is fed through a horizontal chute, or hopper, under a verticle plunger, operated by a lever which cuts off enough to fill the print below and presses it, any excess in quantity passing out through openings for that purpose. The plunger rod works through guides in a cast iron frame, and a nut on top end of the rod is adjusted to let the plunger down just far enough to leave the proper quantity in the print. The prints are square in form, a pound being four and three-fourths inches long and two and one-half wide, which is a much better form for packing or handling in any way, than the round.

Also a Butter Shipping Box. This is a square box, iron bound with capped corners. The trays for the butter are put down into the box, one on another, leaving a space in the center for a movable ice-box, or if ice is not needed a strip is provided to fill the space. An air space is left all around the trays to preserve the temperature and save ice. By the use of such a box the butter is got to market in nice order, greatly enhancing its value.

Also a Portable Animal Power. This is a very light power in the form of the well known endless chain, on which a dog, sheep or goat may be made useful in

doing such light work as churning, etc.; elevating the power according to weight of animal and speed required.

Hoosier Churn Power, by J. B. Snider, Pickardsville, Clinton county, Indiana. This is a very useful and convenient power for any light work, and consists of a train of gear wheels driven by a weight and cord, which are wound up by a lever and ratchet, from which either rotary or reciprocating motion may be obtained.

Churn, by A. H. Allison, Knightstown, Indiana. The peculiarity of this churn is that the churning is done by revolving spiral wings on a wooden shaft, which forces the milk through a lattice partition, the butter remaining in an eddy and is not returned to be beaten by the wings, thus producing butter with unbroken grain, and when the churning is done the butter is ready gathered in a body in this eddy.

Barrel Churns, by Bacheller & Son, Rock Falls, Illinois. This churn, as its name indicates, is in the form of a barrel hung on trunnions in the middle, so as to balance it, and the churning is done by revolving it over endwise by means of a crank. It is claimed that better butter is produced by this churn than others for the reason that there are no paddles or beaters to break the grain of the butter. The cover is full size of the churn which gives easy access for taking out butter or cleaning.

W. H. Adair, Dublin, Ind., exhibits a box churn with a revolving dasher with curved arms, which throws the cream to the corners of the box. It is driven by means of a pair of bevel wheels and a crank. To gather the butter the dasher is revolved in the opposite direction.

"Duplus" Churn, by S. N. Utter, Franklin, Ind. This is a peculiarly constructed churn in which the churning is done by two revolving dashers, or beaters, moving in opposite directions, the arms of one passing through spaces between the arms of the other. One shaft is hollow and the other passes through it, and are driven by a crank and bevel gearing. The churn may be used in any vessel that will hold it, without regard to size or shape.

Butter Color, by F. B. Fargo, Lake Mills, Wis. This is a material for giving butter the beautiful golden color so much fancied, which, it is claimed, is entirely free from smell or taste, and contains neither acid or alkali, and does not injure the aroma of the butter. It is best put into the cream in churning, though butter already made may be colored with it of uniform color that will not fade or wash out. Some lard colored with it looked as tempting as the best June butter.

Elder & Co., Indianapolis, exhibit a lot of excellent and beautifully finished stoves, among which is the "Round Westminster," base burner and base heater, which has an adjustable fire grate that may be raised or lowered to free it of clinkers, and may be revolved to equalize the burning; and is easily cleaned with the poker without opening any door. Another good point is in the ease with which the base flues may be cleaned by an opening on the outside of the stove. It is beautiful in design with full nickel-plated ornaments, which the perfect ventilation prevents being tarnished or discolored by the heat of the stove.

They also have the "*Square Westminster*." A distinguishing feature of this stove is in the dropping of the door of the ash pit, which prevents dropping ashes in front of the stove in removing the ash pan. Also a dropping door in front of grate section, thus giving free access to the entire grate. Another good feature is in the use of the Dock ash grate, by which the clinkers may be removed from the entire bottom of the fire box either by shaking or revolving the grate; by revolving, a new burning surface is presented to the fire. By the peculiar construction of the fire-box and lower section of magazine they may be removed to burn wood. This, like the round, is most beautiful in design and ornamentation, with tight joints that prevent the escape of gas.

They also exhibit the "*Acorn*" Range, which is handsomely gotten up with all the latest improvements. The plates are very heavy, especially adapting it to coal, and it is also a first-class wood range.

Also the "*Prize Acorn*" coal cook stove. All the latest improvements are combined in this stove. It is extra heavy, with asbestos-lined oven doors, has draw-hearth and portable nickel-plated reservoir, and full nickel-plated trimmings. These stoves are made of the best material by Rathbone, Sard & Co., Albany, N. Y.

Ice Hook, by *Winebrenner Bros., Huntington, Ind.* This is a new, novel and convenient arrangement of a hook for handling ice, or other material. It consists in a handle, with a convenient hand-hold on upper end, which passes through a cross-piece, which serves as a guide, and has its ends bent down, to which the upper ends of the hooks are jointed, the lower ends being in the usual form. These hooks are also connected to the lower end of the handle by rods, with one end jointed to them about the middle, and the other ends jointed to the handle. By depressing the handle the hooks open, and close by lifting—the greater the weight the tighter they hold.

Several articles were entered in Book C, which could not be found by the committee. These were:

Steam Washing Machine, by John P. Myers, Rochester, Ind.

Automatic Fan, by Kelso & Hickey, Morgantown, Morgan county, Ind.

Ironing table, by Wm. Herndon, Indianapolis, Ind.

Carpet stretcher, by Samuel Amick, Brownsburg, Hendricks county, Ind.

Water filter, by J. C. Adsit, Olean, N. Y.

Churn, by E. P. Koonty, Ligonier, Noble county, Ind.

Churn, by Coppock & Morris, Richmond, Ind.

Respectfully submitted,

JOHN M. SEWARD, Committee.

REPORT OF THE COMMITTEE

FOR THE

Special Merits of Unpremiumed Articles Entered in Book E, No. 1,

AND

Exhibited at the Indiana State Fair, September, 1883.

Book E embraced all tools, implements and machines used in farming and stock feeding. On account of the large number of entries, it was found necessary to divide this group into three sections, designated by the figures 1, 2 and 3, and refer them each to a separate committee. In the hurry and crowd of business at the Fair, book E, 3, was overlooked and no committee provided for it. Portions of it were subsequently divided between the committees on 1 and 2, and examined and incorporated into our reports; but much of this book was not reached for want of time.

It is moreover to be regretted that in dividing the group E, no classification of the articles is made. Your committee would respectfully suggest that in the future all earth-working implements, such as plows, cultivators, harrows, rollers, pulverizers, etc., be entered in one book; and seed drills, planters, harvesting machines, etc., form a second book; and that threshers, separators, cutting-boxes, feed mills, and the general farm miscellany be entered in a third book. This will greatly facilitate the labor of the committees and accommodate the readers of the reports, who will then find all articles of the same kind grouped together. As it now is, we can attempt no classification of our work, but will be compelled to present everything promiscuously.

The following implements and machines, entered for exhibition, were examined by us:

The Star Wind Engine, Flint, Walling & Co., Lafayette, Indiana. The rim of the driver consists of six segments forming a solid wooden wheel, into which the wings are permanently fastened in gains. It is extensively used for pumping water for stock, but a wheel twelve feet in diameter, attached to an iron gearing, runs a mill for grinding feed, and does good work. Under ordinary circumstances an engine

of this kind will furnish ground feed enough to serve the stock on a common farm. Its power may be communicated by belt to run any light machinery. The engine requires no other attention than to supply it with work to be done, the power costing nothing.

Vindicator Farming Mill, Levereux & Wild, Lafayette, Indiana. This mill uses four screens, when at work, in two sets, one for wheat and other kinds of grain, and another for clover and grass seed. In grains it makes three grades: one for seed, consisting of a selection of the largest grains; another of marketable grain, and a third consisting of foul seeds and faulty grains. It proves itself capable of separating seeds where the difference is no greater than that between timothy and clover seeds. The screens are hung on springs and can be adjusted to any desired angle.

Champion Fertilizer and Grain Drill, Johnson, Gere & Truman, Cleveland, Ohio. The parts in the fertilizing attachment are adjustable by a lever and kept clear by a vibrating rod, set at a proper angle. The grain drill has a revolving feed, the amount dropped being regulated by changing a cog wheel in the gearing. The hoes are thrown zig-zag by a lever.

Harrow and Cultivator Combined, by Johnson, Gere & Truman, Cleveland, Ohio. A sulky harrow with four beams with two spring steel teeth on each, inclined right and left, so as to give the proper space between them. Pressure put on them by the weight of the driver regulated by a lever. When used as a cultivator, the beams are so adjusted as to give the desirable space for the corn row. A very convenient implement.

Binder Truck, Colton & Hamilton, Franklin, Indiana. This is a truck for removing a binding harvester from place to place. It consists of a broad gauge axle fitted to receive the hind wheels of a wagon, which is attached by a long coupling and a peculiar link to receive the king bolt of the fore wheels of a wagon. On this the binder is loaded, so that the driving-wheel is on the off side, throwing the chief weight on the hind axle or truck.

Plows, Harrows and Cultivators, Wier Plow Works, Monmouth, Illinois—Indianapolis sale house, No. 19, 21 and 23 north Tennessee street. Four general purpose plows; steel mould-boards, shares and landsides; steel, or wooden beams; 12, 14 and 16 inches cut; strongly made and highly polished. Three old-ground plows; all steel. One with wooden beam, the other steel; 12, 14 and 16 inches cut. A two-horse cultivator, (walking), iron beams to the double shovels, furnished with a spring to each, so adjusted that it has no lifting power when the shovels are in the ground, but when raised above ground the springs are sufficient to support the weight of the shovels. A two-horse sulky and walking cultivator; a double steel, arched axle, so arranged, by a sliding motion on a rod, that the shovels may be adjusted to any desired distance apart. Also double shovel corn plows with either iron or wooden beams and shanks.

A tongueless cultivator with a double steel arch, adjusting the distance of the gangs from each other. The wheels are so adjusted that they remain parallel,

whether the horses walk even or not. Shovels are made with either wooden or iron beams.

A general purpose sulky plow, sixteen inches cut. The wheels are made of steel, light and strong. It has an adjustable rolling cutter, and a power lift operating near the rim of the wheel and controlled by a lever in the hand of the driver. Another sulky plow was exhibited, designed for sod breaking. It had a very long steel mould board.

Square and diamond harrows, double, triple and quadruple. Twenty steel teeth in each section.

COLLECTION OF PLOWS, ETC.

Furst & Bradley, Manufacturing Co., Chicago; sold at 171 East Washington street, Indianapolis. Five general purpose steel plows with wooden beams, eleven, twelve and thirteen inches cut.

Three steel plows with steel beams.

One general purpose plow and two adapted to stubble or weedy ground.

Three one-horse bar-share corn plows—two of steel and one made of chilled iron—seven and eight inches cut.

A single-shovel plow, all iron, the shovel thirteen inches wide; highly polished.

Three double-shovel plows—one with wooden and two with iron frames—light, strong and convenient.

A sulky hay rake, hand dump, twenty steel teeth, oil tempered, with coiled steel springs. The same, with a self-dumping attachment.

A two-horse cultivator, adapted to either riding or walking; three shovels on each beam. The beams are raised by the foot in turning, when used as a sulky.

A cultivator with steel arch, adjustable to any width of row. One shovel and one bar share on each beam. The plows adjustable with regard to depth, and a spring lift to each.

A five-tooth single cultivator on a wooden frame, with a wheel in front to regulate the depth.

A Scotch double harrow with forty steel teeth, and a triple harrow with sixty teeth, adjustable, so as to stand perpendicular, or inclining backwards. A harrow in two sections, with handles attached for managing it. It has forty-two steel teeth.

A steel-bottom road scraper, thirty-four inches wide. Light, strong and easily managed.

A double field roller, made of wooden segments with iron ends, thirty inches in diameter. The weight is placed in a stationary box above the rollers, and may be increased or diminished at pleasure.

Two farm wagons with thimble skeins, containing an ingenious device for oiling the wagon without removing the wheels.

Two steel sulky plows. One has a friction attachment for raising the plow, the other has the beam hung on a swivel to allow motion in rough ground.

A one-horse corn drill, dropping a single grain, and capable of being so adjusted as to make four different lengths of space between the grains.

SHELLING AND FEEDING MACHINERY, AND PLANTERS.

Eagle Machine Co., Lancaster, O. A single-hole hand corn-sheller, with an arrangement to separate the corn from the cobs.

A double-hole power sheller, with a cob elevator and fanning apparatus for cleaning the grain.

Two hand strawcutters and one power cutter, with the horse-power attached, though any other power may be used. It has two revolving knives, and is well adapted to cutting cornfodder. The one horse power accompanying this feed-cutter is light, portable and very convenient about the barn or in the wood-yard.

A hand corn-planter, adjusted to drop from three to six grains. Also a one-horse wheat-drill with three hoes, and wheel behind.

DOUBLE-ROW CORN-PLANTER.

Hurst, Dunn & Co., Peoria, Ill. A two-horse double-row corn-planter with a hand drop. The depth of planting regulated by a lever operated by the foot of the dropper at will. A wire check-row attachment may be adjusted to this drill, if desired.

GRAIN DRILL.

King Drill Co., Logansport, Ind. One three-hoed drill for seeding among corn. It has a force feed, and the hoes are furnished with break-pins.

A five-hoed wheat drill, force feed; a wheel gauge, to regulate the depth and the width of the drill rows, is adjustable.

PRESSER WHEAT DRILL.

Havanna Presser Drill Co., Havanna, Ill. This drill is a departure from the common pattern in several particulars. It is a return to the old augur feed, and the hoe terminates in a shoe similar to that of a corn planter, and each hoe is followed by a pressure wheel about twenty inches in diameter and two inches on the tread. These wheels, equal to the number of hoes, are all placed on the same shaft and revolve together. This arrangement will require the surface of the ground to be free from local inequalities, that the pressure of the wheels may come equally on all the drill rows. It is claimed that this pressing the earth on the grain will secure a more certain and uniform sprouting of it, and largely secure it against winter freezing. Your committee is of the opinion that these claims are well taken

TWINE-BINDING HARVESTERS.

Dorsey Machine Co., Milton, Ind. The knot is made by a very simple combination of movements and can hardly miss binding. A revolving guide adjusts the sheaf as to the place of binding in long or short grain.

Also, a mower constructed entirely of iron and steel. Gearing enclosed so as to rsecure it fom dust or wet.

Twine-Binding Harvester, Minneapolis Harvester Works, Minneapolis, Minnesota. In this binder the knot is securely tied by means of a plunger bolt without a spring. Chain gearing conveys motion throughout the machine. The packer trip operates behind the bundle and is not interfered with by the oncoming grain. The place of the band is adjusted to the length of the grain by means of a lever. All changes and adjustments are made by the driver on his seat.

Minnesota Chief Separator, Northwestern Manufacturing and Car Co., Stillwater, Minn., J. B. Parker, Indianapolis Agent. The Minnesota Chief is a complete thresher and separator. It separates the grain from the straw immediately on leaving the cylinder. The concave and feed-board are adjusted by a lever and ratchet. The machine is leveled by set screws under the bolster without special regard to the position of the wheels. The driving belt is adjusted without removing rods or bolts. All the belts are on the same side of the machine, so that the working of all can be observed at once. The elevator belt gets its power from a pulley below the stacker shaft. The straw rack extends the whole length of the stacker. The machinery runs smoothly and with but little noise.

SULKY CORN CULTIVATOR.

Hench & Dromgold, York, Pa. Three narrow shovels and a sheet-iron shield attached to each beam. It can be converted into a fallow cultivator, with four shovels in each gang, by replacing the shields with shovels. The axle is in two sections, each terminating in a kind of stirrup on which the feet of the driver rests and by means of which he can give direction to the wheels independent of the team. Pressure may be put on the shovels by means of a lever operated by the driver on his seat. A low attachment of the team is provided when it is necessary to relieve it from the weight of the tongue on the neck-yoke.

GATES.

Cook's Automatic Gate, T. R. Cook, Arcadia, Indiana. An automatic farm gate with connecting rods entirely free from the ground and protected from freezing. A central wheel operated by the rods on a horizontal hinge. A latch arrangement independent of the carriage gearing, is provided for horsemen. A few links of chain at the end of each rod takes up the expansion and contraction from change of temperature.

Automatic Farm Gate, Kelso & Hickey, Morgantown, Indiana. This gate is operated by hand from a wire rope extended on an elevated frame several feet in advance of the gate on each side. The power is derived from a heavy weight suspended from the top of the post. The arrangement is simple, and not liable to get out of order.

PLOWS.

Bucher & Gibbs, Canton, O.; E. Almond, General Agent, Indianapolis, exhibits sixteen plows, all steel or iron, except the handles and beam. All the parts of these plows, both metal and wood, are interchangeable, so that any piece failing, its place can be supplied with a new one on applying to the agent. Either jointer,

rolling cutter or coulter may be used on any plow. All general purpose plows sixteen inches cut.

Plows, Breed & Edwards, Pittsburg, Pa., show nine general purpose breaking plows, one double, and one single shovel plow and one corn cultivator. All these plows have steel beams. Four of the breaking plows are combination implements, having steel mould boards and chilled iron shares and landsides; the others are steel throughout, and the shovels are steel, highly polished. The plows cut from ten to fourteen inches.

Collection of Agricultural Implements, H. D. Conde, General Agent, Indianapolis. Three corn shellers: one single-hole hand corn sheller, simple; the same with a fan, and one double-hole combined hand or power sheller, with fan and cob carrier.

A large display of breaking and cultivating plows, chiefly from the Keystone Manufacturing Co., Sterling, Ill. A double-row corn planter, lock lever hand drop. The Advance hay rake, made by the Shawnee Manufacturing Co., Xenia, O. It has eighteen spring-steel teeth. Lock lever self-dump easily managed.

One farm wagon and two double-seated spring wagons, from the factory of Studebaker Bros., South Bend, Ind. They are strong, well-made and highly finished.

A Corbin disk harrow, with twelve concavo-convex steel disks, sixteen inches in diameter, arranged in two gangs. It is an excellent pulverizer.

Key-stone cider mill for hand or other power. It has two corrugated rollers, and appears to be a very efficient machine for the work designed.

The Meadow King mower, made by Gregg & Co., Trumbsburg, N. Y. This is an all iron mower, simple in construction, light running and strong. The power on the sickle is the same, whatever position the cutter bar may be placed in.

Quaker City Lawn Mower, Lloyd, Supplee & Walton, Philadelphia, Pa. This is a front cut mower with a wooden roller in the rear and a flexible handle. The same parties exhibited the Pennsylvania lawn mower with high wheels, intended for cutting taller grass. All the moving parts of these have steel bearings, and they appear to be very permanently made.

Hay Carrier, W. G. McComas, Colerain, Ohio. This is a machine for storing hay by horse power. A pair of iron rollers are set in a malleable iron frame and run on a wooden track hung by iron links so as to work level, or at any angle. The check which arrests the movement is cushioned with rubber so as to break the jar on stopping the load. The same parties exhibited a hay stacker and elevator on a portable wooden frame. Handy for transferring hay from the wagon to the stack.

Cultivator and Sulky Plow, Long, Alstetter & Co., Hamilton, Ohio. A two-horse corn cultivator. Bar shares next the corn for the first plowing, arranged with rolling cutters in place of shields to protect the corn. Double shovels and sheet iron shields on each beam, for after plowing. Adjustable arch to accommodate the width of rows, and spring lifters to each beam. A sulky plow—both wheels run-

ning on the unbroken land. Three horses, the off horse walking in the furrow. The plow is all steel, with a revolving cutter. It is lifted, in turning, by a lever. The same parties exhibit a sulky hay rake with twenty spring steel teeth. Lever lock hand-dump, with an overhanging cleaner to prevent any grass from adhering to the teeth.

Drills and Corn Planters, Farmers' Friend Manufacturing Co., Dayton, Ohio. Two corn drills—one with attachment for distributing fertilizer; both adjustable to different spaces; dropping single grains.

Four corn planters—one convertible into a drill, and one with a fertilizing attachment. All hand droppers.

Two eight-hoed grain drills—one with an attachment for distributing fertilizers.

Thrashers—Vibrator Patent. Nichols, Shepard & Co., Battle Creek, Mich., exhibit the original vibrator machine, now owned by George N. Higgins, of Sullivan county, Ind. It has been in service through six successive threshing seasons, in which time there have been delivered from it more than two hundred thousand bushels of wheat, and it is yet in good working order.

They also exhibit a new vibrator with a clover huller attached, capable of hulling seventy-five bushels of seed per day. Huller attachment costs \$50.

Hay Rake and Tedder; Belcher & Taylor, Agricultural Tool Co., Chickopee Falls, Mass. A hay rake with twenty-two spring-steel teeth; the four nearest each end are shorter than the others and curved inward, so as to throw the hay it is gathering towards the center. A spiral spring (which is not a part of the tooth) is attached to the upper end of each, and relieves the tooth from the strain of any obstacle it may encounter. The rake has an automatic self-dump.

Mower and Reaper; Rawson Manufacturing Co., Hornellsville, N. Y. A mower with a double slide cutter bar, with an advance guide wheel at the outer end. The cutter is elevated by a lock lever, and may be held at any angle between horizontal and perpendicular.

A self-raking reaper—five rakes, acting independent of the sickle motion. Either may be run without the other.

Hay Tedder; Belcher & Taylor, Chickopee Falls, Mass. The Original hay tedder. It is a one-horse two-wheeled machine, operating six hay forks—four between the wheels and one outside of each wheel. It stirs the grass from the mower very effectually, and in heavy grass it is an important aid in hay making.

Straw Stacker; Trees & Meltzer, Manilla, Ind. In this machine the straw carrier is elevated or lowered by screw power, no ropes or pulleys being employed. The operating parts are all iron. It has a fan at the point where it receives the straw, which cleans it of chaff. The carrier is on a two-wheeled truck, and can be elevated to the top of a stack thirty feet high.

Fanning Mill; Dickey & Pease, Racine, Wis. This is a hand mill for cleaning grain and separating seeds. It has three sieves, a screen and a riddle. It does good work.

Drills; Dublin Agricultural Works, Dublin, Indiana. Two wheat drills fed by revolving fluted rollers. Rate of feeding regulated by a lever. One drill has a drivers' seat in the rear, on springs. Hoes are lifted by a lever in reach of the driver on his seat. The draft is attached to the frame below the tongue, so as to relieve the neck-yoke from its weight. Also, a corn drill fed by a revolving conical disk with slotted edges and an automatic cut-off, dispensing with the brush.

Wheat Drill; Thomas, Ludlow & Rogers, Springfield, Ohio. Wheat drill fed by revolving wheels with flanges. The feed is regulated by a lever operating on a valve. It has a stationary axle, the wheels moving independent of each other. It measures accurately the number of acres and rods sown and registers the same on a dial. The hoes are furnished with springs which yield to obstructions. Also a hoe pressure drill, so arranged that the seed can be planted at any desirable depth. The pressure is regulated by lock lever. It has a fertilizer attachment fed by an oblong conical disk operating a force feed.

Fanning Mill; S. Freeman & Sons, Racine, Wisconsin. A hand or power fanning mill and seed separator, in which the shoe and all other vibrating motions work on rollers. Employs eleven sieves and two herders—separates wheat into the sections graded by the size of the grain. Cleans clover and grass seeds from all foul mixtures.

Twine-Binding Harvester; George Esterly & Son, Whitewater, Wisconsin. Twine-binding harvester; chain gearing throughout; knot made by a cam instead of a plunger bolt. Simple and easily kept in order.

Reapers and Mowers; Wm. Anson Wood, Youngstown, O. An automatic raking harvester, in which the rakes are operated by an endless screw. The platform apron is regulated by a lever and weight. The gearing is very simple, only four wheels being employed to run the machine. The sickle is moved by an eccentric, and can be thrown out of gear when moving from place to place.

Also, a reaping dropper. Position of the dropping platform adjusted by a foot lever. The reel can be so regulated as to adapt it to any height of grain.

Also, the same party exhibited a mower. The cutter, under complete control of the driver from his seat, adapting it to level ground or hillside. The sickle bar is held in position by a spring. The bearings are boxed with chilled iron throughout. The machinery is inclosed, securing it from dust and wet.

Hay Rakes; A. W. Coates & Co., Alliance, O., exhibit three hay rakes of substantially the same pattern. They have each twenty-three spring-steel teeth set in a rake nine feet long, a spring seat and lock-lever automatic dump. The implement is well made and of good material.

The Cotton Self-Opening Gate; made by McShersy & Co., Dayton, O., and exhibited by J. F. Duckworth, Indianapolis. This gate opens by the approach of a wheeled vehicle, the rod changing the center of gravity by moving the lower hinge right and left. It has an ingenious latch which secures it from being opened by vicious animals, but which can not be described intelligently without a drawing.

The Odell Check-Row Corn Planter, Odell Check-Rower Co., Fairburg, Illinois. The dropper is operated by a check-row wire operating on segments of a cog wheel and pinion. The distance between hills is regulated by a lever having holes by which the different spaces are given. Its easy movement gives confidence in its accurate dropping. It drops two rows.

A Collection of Farm Implements, Exhibited by Meal & Bradley, Indianapolis. A twine-binder made by J. F. Siberling, Akron, Ohio. A light draft elevator machine. In ordinary grain it may be worked by two horses. It uses the compressor arms, and makes its knot by a plunger bolt. From the same shop is exhibited an iron frame, low down twine-binding harvester. Besides its iron structure this has another peculiarity. As soon as the presser arms grasp the sheaf the revolving canvas on the table stops and remains still till the knot is tied and the sheaf discharged, when the canvas moves on again to form another sheaf. All these movements are automatic and require no attention from the driver. This, also, is a two-horse machine with five and a half feet cut.

From the same shop—a table-rake reaper. A single-jointed rake sweeps the whole table, gathers and discharges the bundle at one motion. The main drive wheel and pinion have double rows of cogs, giving greater security from breakage.

Also the Empire, Jr., Mower, a novelty in the form of a one-horse mower, four feet cut. This machine is made of iron and steel. A very convenient implement for light work. Empire, Sr., is of the same pattern, but a size larger. Both have their working parts encased.

Same Collection. The Richmond Champion Grain Drill. The hoes are held firmly locked by a spring, till they meet with a strong pressure from obstruction, when the spring yields and the hoe is thrown entirely back. It has a fertilizer and grass seeder, which are detachable. It has a cup, force feed, a driver's seat behind and a low hitch to relieve the neck-yoke from the weight of the tongue.

Same. A mower of light draft, cutting four feet three inches. A shoe at both ends of the cutter bar. A complete device for elevating and lowering the cutter bar by the driver without leaving his seat. The gearing is enclosed.

Same. A double-row corn planter. It is hung on a swivel to accommodate the planting shoes to inequalities of the ground. It has a movable seat by which the pressure on the planter can be adjusted to any desirable depth. Adapted to the hand drop or check row.

Same. A rotary-drop corn drill, with fertilizing attachment, which can be separated from the drill.

Same. Two corn planters, dropping by rotary plates—twelve drop-holes in each plate, with a stop and ratchet holding the plates firmly when not desirable to drop. Pressure made on the planter-foot by the weight of the driver, and regulated by a lock lever. When a check-row wire is used, a lock-latch secures it against missing a drop.

Same. A stalk cutter. The revolving cylinder, with its knives, is pivoted on

wooden rollers, operating in an oblique slot, in a permanent iron frame attached to sulky wheels, so that the cylinder can pass over any obstruction without lifting the whole machine. It appears to be well adapted to the work it is designed to do. We learn that it is extensively used for cutting cotton stalks in the South.

Same. A two-horse wheeled cultivator (walking). It has a patent spring for raising the shovel beam, which has no lifting power when shovels are in the ground, but operates with increased force as they are raised, till finally it holds the beam and shovels without any other support. It has an adjustable hitch, high or low, and the handles can be set at any desirable width apart.

Same. A grain drill, made by Norris & Bro., Rushville, Ind. It has a horizontal cup force feed, with a rear seat, movable from side to side, to accommodate the driver. Low hitch, and hoes thrown zig-zag by the driver on his seat. Besides this, there is exhibited from the same shop five one-horse wheat drills of different sizes, and a corn drill; and also a five-hoed cultivator, which may be adjusted to suit any width of corn row. For further information on this collection address Meal & Bradley, Indianapolis.

The Iron Monitor Wind Engine. *Iron Monitor Wind Engine and Manufacturing Company, Troy, Ohio*, exhibits a sample of their engine, geared for working a pump. It is constructed entirely of iron—arms, wings, governor and gearing. The first distinctive feature of this engine is that the wind acts on the rear of the wind wheel; and this, by its revolving shaft being poised on a center some distance from it, the wheel itself becomes a vane, thus dispensing with that appendage. The wings are hinged on iron rods radiating from the center of the wheel, and they are operated by a governor, which is a square yard of sheet iron, standing perpendicular on an iron rod some ten feet to the windward of the wheel. A strong wind forces this from the perpendicular to an angle with the horizon, more or less, as the wind is stronger or weaker. This motion, by connecting rods, moves the wings so as to change their angle of exposure to the wind, thus securing it from damage in time of storms. This governor acts automatically, requiring no attention from any one. If it is desirable that the engine shall not run, the governor can be laid in a horizontal position, when the edge of the wings will be turned to the wind, which can have no effect on them. This engine communicates its motion to a pump by an eccentric instead of a crank, but it may be geared so as to give motion to a horizontal pulley below, from which power may be communicated by a belt to a feed mill, straw cutter, or any other piece of light machinery. It is a valuable piece of farm machinery, as it works with but little attention, and the power costs nothing, being derived from one of the wasted forces of nature.

The same company exhibited two iron force pumps; one single and the other double acting, and the same with wooden stock. The motion is communicated from the handle to the piston rod by means of a yoke, which largely increased the length of the stroke.

Champion Iron Fence; Canton Iron Fence Co., Canton, Ohio. Made entirely of wrought and malleable iron. Posts consists of four T shaped bars arranged

around a central iron rod. Rails are of T bars, to which the pickets are secured by means of malleable iron clamps. The fence is durable, substantial and ornamental.

Respectfully submitted,

R. T. BROWN,
OLIVER BUFKIN,
Committee.

REPORT OF THE FIRST DIVISION

OF THE

Committee on the Special Merits of Unpremiumed Articles, Exhibited at the State Fair, 1883.

STRAW STACKERS.

Russell & Merrifield, of Indianapolis, Indiana, exhibited a straw-stacker of novel construction. It is operated by sprocket-wheels and link chain, avoiding all gearing and wheels. The stacker is carried with the separator in the rear; it is easily and quickly raised by means of a derrick with a wire rope, which passes over an iron flanged spool provided with shaft and crank. The stacker is elevated by an inclined plane; with one movement it is brought into position; it is securely held in its place by a derrick, no matter whether the front wheels of the wagon on which the separator is mounted, stand lower than the wheels on the rear trucks, this does not effect the working of the stacker. One other important feature in this straw-stacker is, that, by raising the stacker to a reasonable height, no loss of its length is sustained; it rests mainly on its rear trucks. In folding the stacker after threshing is completed, it slides back on its inclined plane toward the separator, is easily folded up and ready for transportation.

J. M. Shapler, Lyons Station, Fayette county, Indiana, Russell & Merrifield, agents, showed a straw-stacker which operated by a machine automatically back and forth, thus making a radius so as to deliver the straw onto the straw stack evenly. By a small rope the man on the straw stack can start and stop the stacker at will, from its radial course, thus the stacker will deliver the straw just where it is most wanted on the stack. The straw stacker is supported by a derrick from top of the separator; by removing a single pin the stacker is drawn back to the separator and the out end of the stacker folded back of separator, a protection for the riddles in rainy weather. The stacker is carried with the separator without additional trucks. A very simple constructed frame is bolted on the back end of the separator sills, and supported by two adjustable standards. Good workmanship is combined with its construction.

Robinson Machine Works, Richmond, Ind., had on exhibition a straw-stacker of very simple construction. A short stacker is attached back of shoe on separator, which carries back light grain to a false bottom under shoe, to which the straw-stacker proper is attached to separator, without extra trucks, and held in position by a forked hinge, and supported by a derrick from the top of the separator. The stacker is folded back on the separator for transportation, and is operated by a quarter cross belt from separator. It is of good workmanship and design.

Russell & Co., Massillon, Ohio, exhibited a mounted adjustable straw-stacker, which is carried on a two-wheel truck at rear end of separator. When in operation the stacker is held in position by a derrick which is fastened on top of separator, and held firmly by ropes. The stacker revolves on a good sized fifth wheel, to give it a proper radial motion so as to distribute the straw evenly on the straw stack. It is pushed by hand to places where the straw is most needed, it being of very simple construction and good workmanship.

Gaar, Scott & Co., Richmond, Ind., exhibited a straw-stacker, mounted on a substantial four-wheel truck wagon. It remains on the wagon while in operation, as well as when folded for moving. The stacker wagon is provided with an adjustable tongue that can be used as a short tongue, to hitch the stacker wagon to the separator, or lengthened to be used with horses. The derrick is fastened by hinged eyebolts at the lower end of the main frame. A short adjustable frame contains the pivoted level gear which forms the mechanism for swinging the stacker back and forth while in operation. At a point where the straw falls from the first to the second stacker, a canvas hood is fastened to direct the straw in its fall so as to avoid tiltering, and as a protection from the wind. The straw is raised or lowered by double windlass, and works easy and light. An adjustable brace is placed under each end of the base piece of the derrick, to support and prevent it from tipping when the stacker is swung around. The stacker is driven by a belt from the separator to the stationary shaft on top of gear frame, the pulley being fastened to the stacker shaft by a set-screw, so as to be adjusted endwise to get in line with separator. It can be set close up to the barns, or farther away to suit the position when the stack is to be made, and is of good design.

G. W. Williamson & Son, New Ross, Ind., exhibited a straw-stacker. This stacker is entirely operated without cog-wheels or chains. It is turned on a pivot, which is supported by anti-friction balls. A lever at a convenient height from the ground is secured to the tube or standard, by which the operator can with one hand shift the stacker in any position desired. The stacker is perfectly balanced by a cast weight, which travels on parallel bars. The discharge of stacker is automatically arranged; it will distribute the straw at will on straw stack. In starting a straw stack the distributor is extended, and the stacker raised about the proper height by means of the check ropes which pass down the carrier platform. The operator places the distributor in the position he desires by dropping a wooden tab which is fastened to each rope on a pin in the bar. By moving the bar the stacker is moved in a circle, and an even sheet of straw is delivered; and by changing the tabs another sheet of straw is delivered in like manner nearer the

center of the stack, and so on until the stack is finished. The stacker is transported on a two-wheel truck, and attached to rear end of separator.

Eagle Machine Works, Indianapolis, Ind., had on exhibition one of their straw-stackers. This stacker has several novel points. The first consists of simplicity and neatness in construction; it is provided with a friction stop to make it stand at any point; to discharge the straw wherever it is most needed; is easy raised and lowered, and folded when job is finished. The stacker is mounted on a four-wheel thimble-skein truck, and is held in position without derrick or ropes. The stacker is raised to working position; also, the outer end elevated and depressed by windlass and wire ropes. The men do not work immediately at the end of this stacker. When the straw is deposited to the required height, then the stacker is moved along the circle by hand, to deposit the straw at another point, working the straw toward the edge of the straw stack. In this manner, while working back and forth, the men keep out of the dust and falling straw.

Reeves & Co., Columbus, Indiana, had on exhibition a new straw-stacker, which is operated by two windlasses. One is to raise the straw-stacker to its required height, and the other to bring it forward on the straw stack, or back toward the separator, just as the operator sees fit to deposit the straw on the straw stack. A very peculiar feature in this stacker is, the higher the straw stack is made the longer the stacker can be stretched on top of the stack—a feature very desirable in straw-stackers. It is mounted on a four-wheel truck; can be hauled separately, or drawn by two horses. The stacker is of good design and workmanship.

Frees & Melzer, Shelbyville, Indiana, had on exhibition a straw-stacker of telescope design. It is raised and lowered by a hand-wheel, which is fastened to a high pitch screw. In turning the wheel the screw works in a stationary nut, which pushes the stacker up to its desired height. The stacker is operated by mitre wheels, which are incased in a cast-iron stand. It is very simple in its construction, and strongly built. The stacker is mounted on a two-wheel truck wagon, and hitched to rear end of separator for transportation.

Moore & Ball, Thorntown, Indiana, exhibited a straw-stacker. One excellent feature in the stacker is that it is entirely operated by chains, which cause but very little friction. The canvas is raised at the same time by the derrick when stacker is unfolded. The stacker revolves on a pivot, and is held in position by guy-ropes. After threshing is completed, it can be swung aside from the straw stack and easily folded for transportation. It is raised by a windlass, which is fastened on top of separator, and held in that position until the job of threshing is finished. The stacker is quickly adjusted, taken down, loaded on a two-wheel truck made for that purpose, and attached to rear end of separator for transportation.

J. D. Truett, of Indianapolis, Indiana, had on exhibition a straw-stacker made by Reeves & Co., Columbus, Indiana. The stacker is of superior workmanship, simple in construction, is held in position by a derrick, raised and lowered by rope and tackle. The lower end of it rests on a frame which is fastened to the derrick, and

provided with a circular base on which the stacker is swung in a semicircle to deposit the straw on the stack where it is most needed to make the stack even on top to turn the water in rainy weather.

E. W. Walker & Co., Goshen, Indiana, had on exhibition a well-boring machine. As will be observed, the auger is turned by means of a jack, the boring bar passing through the large bevel wheel, and between two rollers, so that the weight of rods and auger will force the auger into the dirt. The boring bar is made of steel, and is of sufficient strength to turn the largest auger. The rods connected with this are made of one and a half square iron, and are connected with heavy cast couplings, very easily and quickly adjusted. The auger is what is called a "pod-auger," made of flange iron or steel. A twenty inch auger is about two feet in length and faced with steel cutters in such a position, and of such shape, that by turning the auger it is bound to fill. The auger is fastened together by means of a heavy iron clamp on top, which, when driven up, will cause the auger to spread apart and discharge the dirt. The opening of the lips is sufficiently wide apart to admit large-sized stones, yet sufficiently close to prevent the dirt from falling out. Will bore through the hardest clay successfully. When passing through quicksand we use a closed bucket which will hold the finest sand. It is said that it will drill from ten to twenty-five feet per day in solid rock.

Northwestern Manufacturing Car Co., Stillwater, Minnesota, exhibited a portable saw mill, strong and compactly built. It can be put in position quickly ready for work, a very good feature in that class of machinery. The setting and re-setting of most saw mills consume too much time, and consequently a loss of time and money is sustained.

R. R. Rouse, of Indianapolis, Indiana, had on exhibition two steam pumps, one in operation furnishing the feed water for portable engines which were on exhibition. He also had a large assortment of hand pumps which attracted the attention of visitors.

Comstock & Coonse, Indianapolis, Ind., had on exhibition a large selection of wooden pumps, with glazed-iron cylinders—a point in wooden pumps of great importance. It overcomes friction and does not wear out the pump stock where the bucket works. If anything should happen to the glazed cylinder, a new one can be inserted in a very short time, which makes it as good as new with very little outlay of money.

New Castle Foundry and Pump Company, New Castle, Ind., had on exhibition an improved double-acting force and lift pump. Its peculiar construction makes it anti-freezing. A shell, which is thirteen inches in diameter at the base and seven at the top, covers a hole in the platform twelve inches in diameter over the well; the pipe that contains the water runs up through the shell to within four inches of the ventilation, and turns into the spout. The shell forms a complete air chamber, receiving the warm air from the well, keeping the water in the pipes and the spout the same temperature as the water in the well winter and summer. This pump will operate just as well in a deep well as in a shallow one, and can be attached to

wooden stocks. It is provided with self-packing buckets, which makes it very desirable and simple, and can be releathered very quickly, if required. Another important point is, it does not require a vent hole in the stock below the platform to let the water down in order to prevent freezing, thereby necessitating raising the water and starting the pump every time it is used.

L. D. Railsback, Indianapolis, Ind., had on exhibition a large selection of his celebrated force and lift pumps of superior workmanship and construction.

Indiana Pump Company, Indianapolis, Ind., showed a very large selection of pumps of various styles, combined with good workmanship and finish.

National Saw-Guard Company, Indianapolis, Ind., had on exhibition a number of their excellent saw-guards in practical operation to show their good qualities and construction. This guard prevents the operator of a buzz-saw from getting injured, and is a great protection from dust while the saw is in operation. It is also provided with a device to prevent the stuff from flying back. This makes it perfectly safe for the operator. It is very simple and compactly built; can be put on any rip or cross-cut table now in use.

Fletcher & Thomas, Indianapolis, Ind., had on exhibition a powerful brick machine. It grinds the clay and presses the brick in one operation, does its work well and makes a smooth and solid brick. The power was furnished by a ten horse-power portable Atlas Engine Works engine.

J. Chample, of Indianapolis, Ind., showed the home comfort combination, desk, cot, bed and easy chair, all in one. This chair is very comfortable; it can be adjusted twelve different ways, and it works so easy that any child five years of age can adjust it. It can be quickly changed from a cot to a parlor chair, writing desk, bed, and for sick people to eat from it. It is neatly made up, and combined with good workmanship.

Robbins & Garrard, Indianapolis, Ind., had on exhibition a fine selection of carriages, phaetons and road wagons of various styles, of excellent workmanship and finish.

A. J. Johr, of Indianapolis, Ind., exhibited some fine carriages and buggies, comfortably constructed and of high finish.

C. H. Black, of Indianapolis, Ind., showed some of their carriages and buggies, which were very neatly upholstered, and of good workmanship and finish.

Furst & Bradley, Manufacturing Co., Chicago, Ill., exhibited some of their buggies and road carts, all very substantially built, and combined with good workmanship and finish.

Helfrich & Darby, of Indianapolis, Ind., had on exhibition one spring and sporting wagon, which were built for hard service, with heavy axles and running gears, and are well finished.

Fauty & Heglee, New Castle, Ind., showed a selection of their manufacture, such as carriages, buggies, spring wagons and road carts, of good design and workmanship.

Wiegel & Ruehl, of Indianapolis, Ind., had on exhibition a fine selection of show cases, of different styles, with improved hard-wood sliding doors and fastenings. They are well put together, and are of a superior finish.

Charles Ostermeyer, of Indianapolis, Ind., exhibited a selection of lounges, brackets, of various forms, and clocks. Good taste was shown in the upholstering of the lounges, and the carving of the clock cases.

C. C. Koerner, of Indianapolis, Ind., exhibited a Remington type writer. It is a handsome, compact and durable, and practically noiseless machine; simple, accurate in construction; is quickly understood, and can be used at once by any one. It is quite a labor-saving machine.

Hueber & Recker, Indianapolis, Ind., had on exhibition two large ice chests, of novel construction, and very good workmanship and fine finish; two counters for bar-rooms, and one large side-board, with mirror. All these were of new design and excellent workmanship.

F. Scheirich & Co., Indianapolis, Ind., showed two fine gilt frames for pictures. One was shown as a sample—how regilding can be done when frames get old and scratched, or otherwise defaced.

Frederick Hetz, Indianapolis, Ind., exhibited two show cases of fine finish, and of excellent design and workmanship, such as is seldom seen.

C. H. Shover, of Indianapolis, Ind., had on exhibition two splendid farm wagons of excellent workmanship and finish, the wagons were varnished so every joint could be closely examined, and, indeed, they were of superior workmanship.

Moline Road Cart Co., Moline, Ill., showed a road cart of very good design and workmanship; it is adapted for rough work and use.

F. Bremmerman, of Indianapolis, Ind., exhibited a buggy with two rods, attached to front axle with a flat link chain which works over a shrive on the back axle. It will avoid upsetting the buggy, if the horse should turn quickly; the front wheels can not lock under the body of the buggy.

Chadwick & Hamilton, of Oscaloosa, Ia., had on exhibition sectional window blinds. They are provided with a peculiar adjustment, so as to get the solid blind up or down. The different blinds can be adjusted at will, to have the ventilation either on top, middle or bottom, and are well made.

Your Committee on Special Merits again suggest that machinery placed on exhibition should be arranged, so as to classify it when brought on the grounds; first of all it will make a far better effect upon the visitor, and, above all, it will aid the committees of the different departments very much in their labors. We found it more difficult this year than in previous years. It would be more satisfactory to exhibitors, if they were allowed to explain more fully to the examining committees the strong and most meritorious points in their machines and articles on exhibition. The exhibits increase from year to year, and many exhibits were not entered at all, but when the committee came around an examination was

demanding by the exhibitor. We think it would be more satisfactory and profitable to the State Board of Agriculture if the number of committees were increased and their time limited to three days, and men put on who are thoroughly posted in the operation of such machines.

Respectfully submitted,

G. H. ZSCHECH.

REPORT OF THE COMMITTEE

ON THE

Special Merits of Unpremiumed Articles Entered in Book E, No. 2,

AND

EXHIBITED AT THE INDIANA STATE FAIR, SEPTEMBER, 1883.

CULTIVATING IMPLEMENTS.

The Illinois Agricultural Works, Springfield, Ill., exhibited Post's Capital City tongue cultivator. The manufacturers guarantee the cultivator, with all of its four shovels twisted, to run absolutely straight without manipulating. This is accomplished by the shape of the plow. It has a spring lifter with equal tension at all elevations; combined coupling by which the plow is attached to the beam, and its distance from the corn regulated, and the beam raised or lowered by turning only one nut. The wheel has a cast hub, cast-steel rim, and contains no wood.

The same firm also exhibited the tongueless cultivator, in which the wheel is drawn to its place by a spring, and thus the plow prevented from falling over. It has a straight shank, the twist being in the beam, and a Bessemer steel arch.

Thomas Meikle & Co., Louisville, Ky., exhibited a tongueless cultivator, in which the width between the gangs is regulated by means of an adjustable wrought iron arch. The depth is regulated by gauge wheels, and the universal joints at the ends of the wooden beams permit freedom of movement in avoiding obstructions. It has a patent cast brace between the iron beams, which prevents them from warping, and the cultivator is easily transported.

The same firm also showed a neat one-horse corn plow.

The Newark Machine Co., Newark, Ohio, exhibited the "Best Drill," which feeds by means of a brass and a rubber roller. It feeds evenly in all kinds of ground, and is not easily obstructed. Also, the "Victor Fertilizing Grass and Grain Seeder." In this drill the fertilizer is agitated so that it is prevented from packing, and the agitator also forces the fertilizer out. It is a force seed feeder also. The seed and fertilizer are delivered through the same spout. It has a rubber

spring like a car spring, which gives elasticity to the feet, and the rubber, instead of being stretched, is compressed. It shifts easily from suitability to clean ground to suitability to weedy ground.

The Dublin Agricultural Co., Dublin, Ind., exhibited the "Tenant Improved Drill." It is simple and light draft, hitches two inches below the drag-bars, and takes the weight from the horses necks. It is force feed, has nothing in the box except the roll, and no aperture for the wheat to escape except through the flute. It has a spring seat, and the levers are all behind the drill, within reach of the driver. This drill is giving good satisfaction where in use. The same firm also exhibited a corn drill. It has no brush, has metallic cut-off, drops one grain at a time, has a concave dial and a break pin on the hoe.

The Elkhart Iron Works, Elkhart, Ind., exhibited a sulky for a plow. It swings the plow by means of chains, and lightens the draft by taking the friction from the bottom and carrying it on wheels. It also has a crank axle by which the right wheel is thrown ten inches in the rear of the other wheel, which prevents the land wheel from dropping into the furrow in turning to the right. The manufacturers claim to be able to turn a square corner without taking the plow from the furrow.

E. Bement & Sons, Lansing, Mich., exhibited the Lansing Spring Tooth Harrow, which is simple in construction and a good pulverizer.

The Empire Drill Co., Jackson, Mich., exhibited the Fertilizer drill. It starts on the inner surface of the flange to force the feed, and distributes the feed evenly and prevents it from packing. It does not drag the feed, but carries it. It has a cast taper axle, like a double wagon, which is more durable than the ordinary form. It has adjustable spring hoes, which are easily moved without bolt or pin.

The same parties exhibited the same drill with a fertilizer. It is force feed, and sows all kinds of fertilizers accurately and even. It has a lifter for cleaning the hoes individually in foul ground. It also has the telescope conductor, which is made of the best Russia iron. It distributes the grain evenly in high ridges and in depressions.

The South Bend Iron Works exhibited ten breaking plows and one sulky plow. The Cassaday plow has become well known. Its oblique wheel dispenses with the ordinary land side, and the weight of the resistance is rolled instead of dragged. This is a great lightening of draft. It also cuts a very even width of furrow. It has a joint tongue, which enables the driver to turn a corner either right or left without taking the plow out of the ground. It has steel and chilled shears, which are interchangeable. The other plows have reversible points, which throws the bevel above, also reversible shears, and are chilled plows. They have a center draft which lessens the friction on the center bar. They are finely finished, have slanting land sides which diminish the friction; they cut diamond-shaped furrows, which are more easily turned.

Jefferson Caylor, Indianapolis, Ind., exhibited the Evans two-horse corn planter.

It has a flexible lever for regulating depth of planting, a simple drop which will not choke, and a drill attachment. It is also light draft.

J. W. Stodard & Co., Dayton, Ohio, showed the Randall harrow. It has pulverizing discs which are keyed onto a continuous shaft. It has but two boxes; is oiled from the top of the gang. The outer ends of the gangs are forward, thus making a better pulverizer. By one pin it is changed from a stiff to a limber harrow, and *vice versa*.

The same party showed the new Triumph grain drill. Its wheels have a full bearing the whole length of the hub. It has a lever lifting the hoes directly from the axle, and there is no additional weight on the axle. The hoes zigzag by a lever. It is easily changed from a grass seed sower.

Jefferson Caylor, Indianapolis, Ind., also exhibited a two-horse corn cultivator, made by the Brown Manufacturing Company, Zanesville, O. Also, the Challenge corn planter made by the Wait Manufacturing Company, Grand Haven, Mich. Also, B. F. Briggs' wood pump, Lafayette, Ind. Also, the Hocking Valley feed cutter, by the Hocking Valley Manufacturing Company, Lancaster, O. Also, horse powers, cider mills, a hay press, a feed grinder and churns.

The Weir Plow Company, Indianapolis Ind., exhibited a pony plow, made of the best English refined steel. They exhibited it in two sizes.

The same company showed a patented three-horse equalizer, which is light, compact and durable. The middle horse's single-tree is attached by a chain and pulley.

P. P. Mast & Co., Springfield, O., exhibited the Buckeye caster drill. The tongue is attached by an anti-friction caster wheel. Only the weight of the tongue is on the horse's neck. This wheel also regulates the pitch of the hoes, and the grain is equalized on even and uneven ground. Also the Buckeye spring-pressure drill. The pressure of the entire drill may be placed on the hoes by a lever. Shoes are attached to the heel of the hoes to regulate the depth and cover the grain. It has very short draft. Also, the shoe drill. It has also spring pressure and a pair of hooks attached to the heel of the hoe, to act as a shoe to cover the grain. Also the Buckeye spring hoe drill. Also the Buckeye combined glass feed fertilizer. The disc being of glass it will not corrode. The fertilizer is easily cut off for rich ground and turned on again for poor ground. Also the Buckeye plow sulky, which can be attached to any plow. Also, a one-horse drill, for drilling between standing corn. Also, two sizes of cider mills. Also, the walking cultivator. It has a spring, which enables the plows to avoid obstacles. Also, a spring-tooth cultivator. Also, a riding cultivator. Also, a broad-cast seeder. Also, a spring-tooth harrow.

Thornton & Darnall, Indianapolis, Ind., exhibited twenty-five plows. They have a concave land side, giving light draft, and run steady. They are made of hard metal, are consequently very durable, and the mould-board and share will not warp. They also exhibit a steel mould-board. The mould-boards are all interchangeable. They claim that their points are more durable than any other. These

mould-boards can be made lighter than the chilled ones, as that process, it is claimed, interferes with the natural crystallization of the iron, and consequently weakens it.

Rude Bros. Manufacturing Co., Liberty, Ind., exhibited the pressure hoe drill. The pressure lever also raises the hoes out of the ground. It has an adjustable seat and a zigzag lever. It is made with or without a caster wheel.

Also, by the same company, was exhibited the Indiana fertilizer drill, combined for both wheat and fertilizer; also, an eight-hoe drill; also a small three-hoe drill to go twice in a row; also, a fertilizer; also, a five-hoe one-horse drill, combined for wheat and fertilizer; also, a five-hoe drill, with a grass seed attachment in front; also, a tongueless cultivator, neat, durable, and castings with wrought iron bolts; also, the same firm exhibited a double-tongue cultivator, with cast spindle and wrought iron bolts. The plows are adjusted by a spring and a chain.

J. C. Wingate, Wingate, Ind., exhibited the Union grain drill. It is claimed that the wheels are six inches higher than any others, and the tire half an inch broader. It is all managed from the seat. It is easily shifted from single to double rank, and the hoes easily lifted out of the ground. It feeds directly from the axle, and has only one cog-wheel, which runs the grass seeder. The hoes can be raised individually, without the operator leaving his seat. The indicator is on the axle and consequently very accurate, and does not wear loose. In front a network of braces holds the hoes apart. It has spring hoes. It also has a fertilizer attachment and a thorough agitator. There is a grass seed attachment in front, but it can be arranged behind the hoes.

Frank A. Phillips, Wingate, Ind., exhibited the Union corn planter. The bar moves on chilled rollers; it uses but one plate, which is regulated to different quantities. It has a double lever, worked by the foot, which raises the planter entirely out of the ground.

Hall & Mustard, Lafayette, Ind., exhibited a flexible cultivator. It has a divided axle, which gives an independent movement to the plows. It will plow out to the last hill, has a direct hitch, is light draft and there is no weight on the horses' necks. It has a simple, adjustable coupler, and the plows are easily brought nearer together.

The South Bend Chilled Plow Co., South Bend, Ind., exhibited nine plows. They are light draft. The point and shin piece are separate, rendering repair cheaper. They have a center draft, and the easy turn of the mould turns sod well. They exhibited seven sizes in four styles. The same company also showed a sulky plow, which is easily thrown out of the ground by an automatic movement. It has a patent clevis for alteration of depth. The wheel is adjustable, to avoid trash falling into it.

The Vandiver Corn Planter Co., Quincy, Ill., exhibited the Barlow planter. It is simply constructed, with a drill attachment. It has a transparent seed cup, showing the corn ready to fall into the hill before it drops. The drop is claimed to be

very accurate. It also has an automatic lock lever, locking the machine into the ground or out of it.

R. H. and C. M. Avery, Peoria, Ill., exhibited the Avery planter. It is forced into the ground by the draft of the team, and maintains a uniform depth in hard and mellow ground. It has a reversible runner, which avoids trash. The same firm also showed a cultivator in which, by an apparatus, the operator has full control of the sulky, as well as the plows. Also, a steel wheel rake. Also, a sulky plow, the wheels of which are all steel and very durable. The plows have steel beams, and the manufacturers guarantee them never to break or spring. Also, a check rower, with a positive stroke, but neither springs nor cogs.

The Eau Claire Chilled Plow Co., Eau Claire, Wis., exhibited four plows. This plow is a general purpose one. It has a crooked standard bending to the land side, and a crooked jointer bending in the same direction, preventing choking. The point is flat on the ground, wearing the top and bottom equally, and keeping the point sharp at all times. It will plow as long as any of the point is left. The shin is separate, the land side straight, and the whole face of the mould-board is a circle. It works easily, and is made a wheel-worker by turning a screw. The plow is adjustable. The same firm also exhibited a full stubble plow, and also a full sod plow.

H. A. Russell & Co., Indianapolis, Ind., exhibited eighteen plows. They were extra hardened and extra braced; the plow share and mould-board high on the shin, thus giving an advantage in turning the earth. Also a cultivator, with a steel spring lifter, which keeps the tension the same at all points, and helps to hold the cultivator in the ground. It is simple, and has an adjustable coupling. The same company exhibited a sulky plow with a double arch, which, it is claimed, is stronger and lighter. It has a solid steel beam, extra box in the wheel, is a horse lift, and there is no necessity to use the weed hook. It runs as well without a tongue as with one.

The same company also exhibit a clod crusher. It has independent crushing wheels on steel axle, and can straddle a corn row. Also the Monitor Drill. It has a sand-proof axle, and can sow grass seed in front or rear. The gearing is under the box, where it is free from dirt and out of the way.

The Mechanicsburg Machine Co., Mechanicsburg, O., exhibited a grain drill. It is a screw feed; has a gas pipe frame which gives durability, strength and lightness. It has a coil spring pressure on the hoes, and direct pressure over the hoes, which are flexible. Also a fertilizer and grain drill. This is the same machine as the one above described, with the fertilizing attachment. It is a positive fertilizer force feed, has a spring seat. Also a harrow and broadcast seeder. This is especially adapted to fallow ground or stubble ground. It will harrow any depth desired.

The Kimberlin Manufacturing Co., Indianapolis, Ind., exhibited the Iron Duke harrow. It is a general purpose harrow, with iron frame and adjustable teeth.

The Crowell Manufacturing Co., Greencastle, Pa., exhibited a grain drill and

fertilizer. It has an independent cut-off, the result being simultaneous with lifting the boots from the ground. It regulates the amount to the acre by weight, indicating the amount in pounds and ounces. The zig-zag is all of iron; the hoes have ear springs for the avoidance of hindrances. It is claimed that this is the oldest grain drill running in the United States. Also another drill, the same as above, only the grain and grass seeders are adjustable. The seeding apparatus is easily moved and cleaned. It will sow from one to eight quarts per acre. It changes the quantity without the wheels being moved, by means of a little lever.

W. H. Thompson, Indianapolis, Ind., exhibited the Eureka pulverizer and stalk cutter. It rolls the stalks down and is followed by a cutter. The roller also pulverizes the ground so it will not bake. In cultivating corn the cultivator straddles the corn row.

The St. Joe Manufacturing Co., Mishawaka, Ind., exhibited a steel sulky plow. It has a horse lift; is light draft; has a device for raising and lowering, and one for shifting the plow. Also a steel beam brake plow, the steel being highly polished. The plow is light draft. Also chilled plows. Also a combination plow with steel mould-board and cast points. Also the Mishawaka cultivator, which has a horse lift.

The Hoosier Drill Co., Richmond, Ind., exhibited three eight hoe-drills, one five-hoe drill, two corn drills, one hay rake. These are all superior goods, and very extensively used.

The Indiana Exchange, Indianapolis, Ind., exhibited Kemp's manure spreader. This implement has been described in former reports. It does its work well, and is desirable where manure is to be distributed evenly over the ground. Also the Webster wagon, which is strong, durable and neat. It is manufactured by the Webster Wagon Company, Moundsville, West Virginia.

The South Bend Iron Works, South Bend, Ind., exhibited nine break plows and one sulky plow. These are of the best material, and the display was very beautiful.

The Dublin Agricultural Company, Dublin, Ind., exhibited an iron clod cutter. It has a circular cut; cuts corn stalks or cobs. It has two sizes of wooden cutters, and a gauge to regulate the length of the cut.

HARVEST MACHINERY.

Thomas Meikle & Co., Louisville, Ky., exhibited a potato-digger with grooves in the shear, which direct the dirt up over the fingers and the dirt falls through them and leaves the potatoes on the top of the ground. It has an iron rudder in the rear, which regulates the depth of the digger, and also keeps the digger steady. This instrument is simple and cheap, selling for \$10.50.

G. W. Williamson & Son, New Ross, Ind., exhibited the Williamson straw-stacker. It dispenses with a derrick, making a perfectly balanced machine, being balanced

on the turn table. It has no cog-wheels and no shaft, except the central one. The straw distributor delivers the straw in different places on the stack, while the operator stands on the ground. Its weight rests on anti-friction balls, and it is claimed that it runs with one-fourth the power of other stackers. It is run by a round rubber belt, and is very easily manipulated. It is folded for the road in one minute, and is balanced when on the road, as well as when in operation.

The Newark Machine Company, Newark, O., exhibited five styles of hay rakes, viz., the O, and OO, and No. 3, Newark rakes; the No. 1 and 2 Hagerstown rakes. Some of these have eighteen and some of them twenty teeth. Nos. 1 and 2 have larger capacity than ordinary rakes, the teeth being back even with the wheels. No. 3 has a friction dump.

The same firm also exhibited the Victor double-huller clover machine. Both cylinders are hullers. In the separator the same apparatus which moves the straw out moves the chaff and seed back to the second cylinder. The spikes in the concave and on the cylinder have rough sides, which prevent wet clover from packing. They also have thick and thin sides, and have teeth on them, so that the seed is compressed and compelled to be rubbed. The seed is thrown on to the shoe without a rattle belt, and the roughest is cleaned by a blast fan. It is thrown into the re-cleaner, which has four sieves with double motion. The weed and imperfect clover seeds are caught in a sack. It is made in three sizes, and will clean from forty to one hundred bushels in a day.

J. D. Truett, Indianapolis, Ind., exhibited the Deering twine-binder. Its two most important features are its lightness of draft, it being claimed that its draft is less than any other binder, and the simplicity of its knotter.

Mr. Truett also exhibited the Deering self-rake. It has an automatic trip regulating the rake, and the construction is such that one or more rakes may be caused to operate at once. One lever moves the grain wheel and cutter bar. Also, a foot-trip rake. Also, the Deering mower, which is a very light machine, and tilts to raise the point of the guards.

J. W. Stodard & Co., Dayton, Ohio, exhibited a hay rake. It has a wrought-iron axle, and it dumps from the center of the axle by a foot trip. Either of its wheels is a dump, and its teeth are independent.

Aultman, Miller & Co., Akron, Ohio, exhibited the Low Down Binder. This reaper cuts full six feet, its weight is 1,050 pounds, it is light draft, and the grain is bound without being elevated. The reaper is raised and lowered by a wheel like a car brake, which is in front of the driver, this operation being easily performed. The driver is within four feet of the team, and the guard and reel levers are in easy reach. The size of the sheaf is regulated by a trip under the driver's foot. Also a Table Rake Reaper. The grain is compressed against the side of the table and delivered in a compact form out of the way of the horses and machine in next round. Also the Buckeye Elevator Binder. Also the Buckeye Mower. This machine runs very easily and works beautifully.

The Plano Manufacturing Co., Indianapolis, Ind., exhibited the New Plano Har-

vester. The proprietors claim that this machine runs one-half a horse lighter than any other machine made. It does good work and has a good reputation where it is in use. Also the New Warrior Mower. The draft of this machine is very light, it is a sure cutter, and has an independent revolving cutter bar.

M. Osborne & Co., Indianapolis, Ind., exhibited the No. 11 binder. The machinery of this reaper is simplified, and some of the ordinary apparatus eliminated by a cam and disc movement. Also the No. 8 self-rake. The rake reels the wheat and reverses so as to leave the ends even. Also the No. 6 combination rake and mower. This machine folds up so as to pass through a four-foot gate. Also the No. 2 mower, which is desirable on account of its extreme simplicity. Its guards are reversible.

Hoover & Gamble, Miamisburg, Ohio, exhibited the Excelsior Harvester and Binder. This is claimed to be the oldest machine in the market. It has an original device for raising and lowering both ends of the bar, also a device for moving the binder. The weight is in the rear, there is no side draft. It has a straight sickle stroke with a rock shaft. The canvas comes up to the back of the sickle, and the knotter works very easily. Also the Excelsior table rake and mower. It has a center draft, cuts six feet, and easily converted into a mower.

J. B. Heywood, Indianapolis, Ind., exhibited the McCormick Twine Binder. It has an adjustable reel, easily moved in any desired direction. The drive-wheel is claimed to be taller and broader than any other in the market. The binder is adjustable and shifting. The cutter bar is of angle iron. The gearing is simple, there being only four cog-wheels. The elevator is adjustable, and it is claimed it will not choke in wet weather. Also the iron mower, which, as most other mowers, is light draft, and cuts smooth. Also the McCormick Daisy single reaper, remarkable for its simplicity, durability, light draft and light weight, only 900 pounds.

John P. Manny, Rockford, Ill., exhibited the Manny mowing and reaping machine. Its construction is simple, one lever raising the bar and elevating the guards. It claims to cut more by one turn of the drive wheel than any other machine. The knife moves on a steel surface, making a complete shear cut. Instead of pushing the bar from the rear of the machine, it is pulled by a nose. The bar is also given free access to all uneven surfaces of the ground. Any piece of the machine can be duplicated.

Also, the Manny reaper. This machine runs its rakes without any chains, knuckles or springs. It has no cam nor rake elbows. Its construction is very simple, and the machine light running.

A. Turner, Franklin, Ind., exhibited a binder truck. It is a "V"-shaped frame, one end resting on a drop axle in the hind wheels of a farm wagon, while the front couples to the front axle of a farm wagon. One man can easily load any binder on this truck in five minutes. When loaded, a machine can be taken through any ordinary farm gate or bars.

F. E. Myers & Co., Ashland, Ohio, exhibited the Nickel-plate hay carrier. It has a continuation of the rope and rod, eliminating the use of a long rope, and,

consequently, shortens the distance of the horses' path. The carrier is also reversible for shifting from one part of a barn to another. There were over twenty entries of carriers at the State Fair of Ohio, and this one received the premium.

Whiteley, Fassler & Kelley, Springfield, Ohio, exhibited the Champion light binder. All of its castings which are under strain are of malleable iron, and all of its angles are bound with malleable iron. The raising and lowering levers, two in number, do not disrupt the gearing. The arrangement of these levers is very simple and very positive. It is claimed that these devices are proven by three years' experience to be superior to any other. The gear and frame are lined in the shop before shipping, insuring this work to be done properly. The cutting device is equally as good as that which is put on the mower. It has a cast steel guard, and a cast steel angle-bar is used, which is so constructed as to give the greatest strength in proportion to its weight. It has a direct front pittman connection, coupled with a device for taking up all of the slack occasioned by wear, always enabling the operator to make the knife register in both directions. The relief rake always clears the inner corner. A spring in the frame of the canvas makes it adjustable to wet and dry weather, and also prevents the wheat from choking in the carrier. There is a trip on the deck to prevent choking in binding, and it also sizes the sheaf. A screw regulates the tension of the binder, there being no extra tension on the cord, but the pressure on the sheaf is simply made harder. It has a coil instead of an elliptic spring, which adjusts the cord to the condition of the cord and prevents abortive knots. It has three packers, instead of two, and the tongue is poised in all positions. The rake is a butter. Also, the Champion new mower, which has only one gear, is very simple, and eleven teeth are always in gear. In any position the bar may be placed in, it is always in motion. The bar is easily lifted out of the way of obstructions. The machine is thrown into mowing position without the driver leaving his seat. Its device for obviating the draft of the tongue is commendable, and it is claimed that the machine runs half a horse lighter than any other; also, that two men can cut with it. Also, the No. 1 single reaper, which is a very light machine. Also, the combined reaper and mower in two styles—the drop and the self-rake.

George B. Davison, Towanda, Penn., exhibited the Eureka Mower. This machine is strictly a centre draft, is made in four sizes, cutting respectively five, six, seven and eight feet. It leaves the grass nearly standing, in which position it cures very quickly. This mower is claimed to be the lightest draft machine in the market.

The Peerless Reaper Company, Canton, O., exhibited the Peerless Mower. It has a ball connection at each end of the pittman, and only tilts the sickle bar. It shoves the bar nearly on a level and is light draft. The gear is enclosed, and the adjustable boxing on the fly-wheel shaft is of Babbitt-metal and can easily be filled. Also, a single reaper. The rake of this machine stops at the single bar, and holds the grain while it is being cut, which gives a more even sheaf. The rake, also, stops at the edge of the platform and the sheaf is left with a square butt. It has a steel cutter bar and a malleable frame. It folds up for transportation.

The raising lever is outside of the cutter bar. All the boxes are of Babbitt-metal and are adjustable. Also the combined dropper. It has an adjustable reel and a tilting lever to cut long or short stubble. It also has a lever to raise or lower the bar without stopping. These levers are in reach of the operator. This machine has also the adjustable boxing, and a gum spring chain tightener. The same company also exhibited the Combined Self-rake and Mower.

The Toledo Mower and Reaper Company, Toledo, O., exhibited the Platform Twine Binder. It has a parallel rake which oscillates and keeps the bar clean. It divides the grain before tying, making a separation of three feet; it also has a discharge arm which casts the sheaf thirteen inches further after it is bound. There are three ground surfaces. It runs with strip canvas instead of webb, the front strip running faster than the others, which keeps the bar clean. It has top-packers instead of bottom. It also has a new binder. It was claimed to be the only Platform Binder exhibited.

The Marsh Manufacturing Company, Sycamore, Ill., exhibited the Marsh Whitney Binder. It has an independent chain carrier which secures a square delivery of the grain to the binder; the grain is also straightened after falling at any angle. It is a platform binder, and no canvas is used. The machinery is in front, and under the eye of the driver. It is claimed that its grain and driving wheels are larger than can be used on a machine constructed on any other principle. It has a perfect three-horse hitch, and there is no side draft.

The St. Paul Harvester Works, St. Paul, Minn., exhibited the St. Paul Apleby Binder. The reel is supported at both ends by adjustable devices, and it will never sag. It has a duplex elevator, opening and closing for heavy or light grain. It has a hand trip binder, hitches very close and is light draft.

H. A. Russell & Co., exhibited the Triumph Single Reaper. Both ends of this machine are raised and lowered by the same movement; it has a very powerful driving device, and its tying device is very excellent. It is strong and durable, and the draft is very light. The same firm also exhibited the Clipper Mower, which runs light, and is strong and smooth working.

Reeves & Co., Columbus, Ind., exhibited a straw-stacker. It delivers the straw in the center of the stack at all points of elevation by means of a cut-away. It is swung by a derrick, which has a ride base on the ground, making it stand firm. The driving belt and gearing are well up off the ground. It will not clog by the dripping of the straw. The cart can be removed in one minute, so that the stacker will rest on four legs, and one can pass under it. It can be used on uneven ground, and about bank barns. It works with or without the cart under it. The peculiar shape of the hood prevents the wind from affecting the straw. The manufacturers claim that there are more of these stackers in use, than all others combined. The same parties also exhibited the new Reeves stacker. It can be set up or taken down in half a minute. By its peculiar, yet simple construction, it delivers the straw in the center of the stack at all points of elevation.

III—Unclassified Devices.

The Perkins Wind Mill and Ax Company, of Mishawaka, Ind., exhibited a wind mill. The vane is hung on a double hinge, the upper one being the shortest and the wheel sets a little to one side of the vertical center, so that when the wind blows hard the outer end of the vane is raised, and this action throws the mill out of gear. The crank is bent out of a solid shaft of iron, and has a third bearing on the outside of the crank. The bearing is extra long, the pitman box being three inches long, and all the bearings are adjustable. The turn-table is of chilled iron; which diminishes the friction.

B. S. Williams & Co., of Kalamazoo, Mich., exhibited a Manville Stover Improved Wind Mill and Pump. The mill rests on sixteen chilled balls, and they rest on a chilled table eight and one-half inches in diameter. This practically frees the mill from friction. It is self-regulating by means of a lever. All the gearing is boxed and there are two oiling places. The felloes of the rim are fastened by iron castings. All the nuts are locked with wrenches to prevent them from working loose. The rim is of oak and ash, boiled in oil, then painted, and this covered with two coats of varnish. It locks itself by a brake and shuts itself off so that it does not pump. The sizes (of the wheel) are from ten feet to thirty feet.

A. P. Rounds, Danville, Ind., exhibited a wind mill and corn-sheller. It is self-regulating by the slats turning. It has horizontal shafting to attach a mill. When out of gear it stands still, and the ends of the slats are to the storm, which render its condition safer. It will work in a storm, being self-regulating.

J. M. Buchanan, Indianapolis, Ind., exhibited road implements. The road plow, either heavy or light, is made of iron and steel and is very strong and durable. The beam is of wrought iron, while the mould-board and share are of steel. The scrapers are for one or two horses. The same party also exhibited a coal cart, the felloes of which are of malleable iron. There are lugs of iron between them to draw the rim in by removing them, if the tire should loosen and need cutting. This cart is said to be very durable.

The Fleming Manufacturing Co., Fort Wayne, Ind., exhibited a road grader. It has two wheels and is very convenient. It claims to handle as much dirt as the four-wheel scrapers. The knife and plank are elevated by levers which work very easily. The knife is concave and the draft is directly on the plank. They also exhibited one with a knife adjustable to any angle. They also exhibited a small scraper with a five-foot knife, for dressing up roads or for private use.

Thomas Roberts, Springfield, O., exhibited the Victory corn mill. It grinds all grades of meal for the table, as well as all kinds of grain for feed. It also shells corn, and grinds corn on the cob for feed. The grain is forced onto burs by a shaft with two spiral ribs. The burs are of hardened, unnealed malleable iron. It does its various kinds of work with the same apparatus.

The Newark Manufacturing Co., Newark, O., exhibited the Monarch fanning mill. It has an independent shake of the riddles, beside the motion of the shoe. It

cleans the wheat and delivers it into sacks. It has a screen box beneath, which separates the screenings. The same company also exhibited the All Right cutting box. The upward movement of the lever turns a feeder, which forces the grain in. The length of cut is regulated by the height to which the handle is lifted. Also, the fodder and sumac crusher, which does its work well.

The Moline Wagon Co., Moline, Ill., exhibited a strong, durable and light-running farm wagon; also, a strong, light-running spring wagon, built for the use of farmers.

T. E. Myers & Bro., Ashland, O., exhibited several double-acting force pumps. They throw a constant stream, and claim more capacity for throwing water than any other pump, because of the greater size of the air chamber. The pressure can be raised to 250 pounds per square inch. They have expansion rubber bucket valves. They are constructed for open, drilled or driven wells. The top fits down in sockets onto a suspended pipe. The plunger and check valve can be repaired without removing the pipe from the well. The spout is adjustable to any height.

Fairbanks & Co., Indianapolis, Ind., exhibited the Eclipse wind-mill. It has a very solid wheel, well braced with castings. One of its rudders stands perpendicular to the wheel, gaining the full force of the wind. It has also a small rudder to regulate the mill in storms. It is of solid wrought iron for two and one-half feet below the gearing.

W. R. White, Vincennes, Ind., exhibited a farm drive gate. It works easily by a lever, and has a double lock for stock gates. The same party exhibited a doorway gate, which can be made of slats or pickets or iron. These gates require practically no room for opening and closing; cut their way through snow, the gate simply shifting to one side, and will doubtless become popular with farmers. They were exhibited in two styles.

J. C. Long, Granville, Ind., exhibited a double latch gate. It opens either way; has a wooden spring latch, will not swag, and works easily. It has a simple lock to prevent any accidental opening. All the locking is also of wood. This gate is very cheap, simple and convenient.

Mast, Flos & Co., Springfield, O., exhibited an iron turbine wind mill. The points of superiority claimed for this mill are as follows: It economizes all the wind; it has a balance wheel to carry it over all dead points; exposes large surfaces to the wind, and is very strong, the fans being manufactured out of No. 24 sheet iron, and there is a wrought iron binding around each fan, and a chain brace around the wheel. It has an automatic gear, and when out of gear the surface is thrown from the wind. It also has the self-oiling adjustable boxes around all the shafts. In connection with the above was exhibited the Buckeye force pump. It is a double action pump—the cylinder is in one piece, and a constant stream is thrown. It is non-freezing, top ventilating, and the handle pin is large and made of steel. Also, in connection with the iron turbine wind mill was exhibited the Buckeye power converter and feed grinder combined. It changes a reciprocating motion to a rotary motion, and grinds with chilled metal burs. It is used for

running any small machinery requiring a rotary motion. The same firm also exhibited the Buckeye juvenile lawn mower. It has a front cut; cuts entirely up to a fence; has a very rapid motion; it has no roller, and will cut on rough ground.

Cole & Fleming, Springfield, O., exhibited the Eclipse post hole and well digger. With this instrument it is claimed that one man can dig from two to three hundred post holes in a day. The digger is forced into the ground by a heavy iron handle, operating like a pile driver. It will work in hard or rooty ground. When it is loaded it is lifted from the ground and unloaded. One of its greatest recommendations is that the operator can stand erect at all times while digging with it. A hole of any size can be dug with it.

Hughes & Bayland, Crawfordsville, Ind., exhibited the Farmers' Friend hand hay press. Two men can handle and bale from three to four tons of hay per day with this press. It being portable, can be worked in the barn or in the field. It does not occupy more than six feet square, and will bind as compactly as desired. Its construction is simple, and it is very durable.

H. A. Russell & Co., Indianapolis, Ind., exhibited the Tiffin corn sheller, which is a good and cheap machine. Also, the Tiffin hay rake. The driver's weight helps to dump the hay from this rake. Also, the Barnes revolving wooden rake. This instrument is easily managed, and is also durable.

H. T. Conde, Indianapolis, Ind., exhibited the Bell City feed cutter, for cutting any kind of feed. The length of cut can be changed without stopping the machine, and any foreign substance which starts into the machine can be rolled out. It is driven with a belt or a tumbling rod. It has an internal gearing and two speeds to one power. The power couples direct to the cutter. The machine comes to the purchaser already mounted on its platform.

Ewald Over, Indianapolis, Ind., exhibited four corn grinders. They have chilled cylinders, and are so constructed as to grind the corn fine with the least possible power. They grind corn for feed.

Peter Raab, Indianapolis, Ind., exhibited a road scraper, which does satisfactory work.

The Stover Manufacturing Co., Freeport, Ill., exhibited the Stover feed mill. It grinds ear or shelled corn, or any other grain for feed. It is a simply constructed geared mill, and grinds twenty or twenty-five bushels per hour.

Indianapolis Bridge Company, by S. H. Godman, Agent, had on exhibition three bridges—two of iron and one combination—all designed for small streams. The design of the bridges, for the purpose intended, was without fault, and the workmanship excellent. The samples of tested iron showed it to be of the very best material.

IV—ARTICLES NOT EXAMINED BY THE COMMITTEE.

The following entries were made, but neither the articles nor exhibitors were found by the committee, and consequently the exhibits were not examined:

The Males Manufacturing Co., Hamilton, O., the Males fodder cutter.

Hadley, Wright & Co., Indianapolis, two hand portable engines.

S. J. Austin, Terre Haute, stock scales.

B. S. Constant, Peru, O., the Farmers' Friend fanning mill.

Moore & Ball, Thorntown, O., The Little Giant straw stacker.

J. S. Schoonover, Indianapolis, a cultivator attachment.

H. McCoy & Co., Indianapolis, Ind., double-trees and triple-trees.

J. A. Bruce, Indianapolis, Ind., plow and pulverizer.

J. C. Long, Granville, Ind., one gate.

The Indiana Exchange, Indianapolis, Ind., cultivator; also plows; also double-shovels.

Fairbanks & Co., Indianapolis, Ind., platform scales.

Johnson, Gere & Trueman, Cleveland, O., grain drill; also a spring tooth wheel harrow; also, a spring tooth wheel cultivator; also a grain drill.

The Parlin & Armdorff Co., Canton, Ill., walking cultivator; also a combined cultivator; also three O. G. plows; also one stalk cutter.

M. O'Brien, Indianapolis, Ind., a cultivator.

G. G. Hampton, Detroit, Mich., cider mill and press.

Lewis, Hampton & Co., Detroit, Mich., potato digger.

Moore & Ball, Thorntown, Ind., straw stacker.

Myers & Hansel, Canton, O., a four-tine hay fork; also a two-tine hay fork also a wood track hay carrier.

A. Fisherback, Marion, Ind., sulky plow.

Springfield Manufacturing Co., Springfield, O., sulky hay rake.

The committee begs leave to suggest to exhibitors of goods in the Special Merit Department the importance of entering articles and tying the entry cards upon the exhibits. Nearly one-half of the goods examined by this committee had not been entered when approached for examination. It would have expedited the work of the committee very much if this had been attended to at the proper time by the exhibitors. A minority of the entry cards which had been procured were found on the articles, the committee being delayed often while they were being searched for.

The committee further desires to express its gratification, not only at the large number but the great variety and the excellence of the exhibitons in this department, and also at the promptness, intelligence and courtesy of the men who represent them. For the patience and kindness of these gentlemen, they have the sincere thanks of the committee.

Respectfully submitted,

S. J. TOMLINSON, *Committee.*

BOOK H.

The section of penmanship and kindred work, contained many fine specimens. The only entry as "Collection of Penmanship," was by Granger's Business College and C. M. Hamilton. These specimens showed much ease and flow of execution. Of much merit were the entries in Practical and Ornamental Penmanship, by the same firm, in which ease of execution seemed to be a cardinal feature.

W. W. Granger and E. J. Heel exhibited specimens of bold off-hand flourishing and shading; also, flourishing and drawing, the letter extending to a quite faithful representation of several members of the animal kingdom, and even human figures. Their chart in bird flourishing attracted much attention, both on grounds of merit and monopoly, there being no other on exhibition. C. C. Koei of Bryant & Stratton's Business College, held seven entries, some of the subjects of which were of surprising excellence, though we believe, averaging older work than the above mentioned. In their specimens of writing we noticed a close adherence to the line of inclination, or graphic axis. Especially was this manifest in ornament shading. In both scroll and other animal portraiture, while the contour had been remarkably well preserved, the expression had not been neglected, as the facial lines were so inclined and grouped as to index the organization. Mr Koerner exhibited some cards of hand and pen stipple work. One of the above firms entered a portrait of Washington in this style, upon which much work had been placed, and much resemblance developed.

W. C. Brazington had on exhibition some nice India ink portraits, which your committee for want of time can not do justice to.

All of the above named parties are from the city.

J. R. Ogan, of Noblesville, Ind., tendered a family record, concerning which the committee would ask indulgence, as in the last named case.

J. A. C. DOBSON,

R. M. RAGAN,

Committee.

COMMERCIAL FERTILIZERS.

PURDUE UNIVERSITY, LAFAYETTE, IND., May 12, 1884.

Alex. Heron, Secretary State Board of Agriculture:

DEAR SIR: I send you herewith a table of all the fertilizers analyzed in this office during the year 1883, so far as the results are on file. These were made under the direction of my predecessor, Dr. H. W. Wiley. Several of these analyses were not on file when I came into the office, and were not reported to me until after the work of the present season had opened, and tags No. 98, 101 had been printed for 1884; for this season and others, some discrepancy exists between a few of the office numbers given below and those printed on the tags.

Readers will find further explanations in Dr. H. W. Wiley's report for 1882. Any discussion of my own must be deferred for your next Annual Report, in connection with the work for 1884. Very respectfully,

ROBERT B. WARDER,

State Chemist.

TABLE OF FERTILIZERS.

Number.		% Moisture.	% Sol. (P_2O_5) Phosphoric Acid.	% Insoluble Phosphoric Acid.	% Reverted Phosphoric Acid.	% Ammonia.	% Potash K_2O .	Pounds Soluble Phosphoric Acid per Ton.	Pounds Insoluble Phosphoric Acid per Ton.	Pounds Reverted Phosphoric Acid per Ton.	Pounds Ammonia per Ton.	Pounds Potassium Oxide per Ton.	Total Value per Ton.
74	Ammoniated phosphate . . .	12.98	3.35	2.57	1.74	8.46	1.04	71.0	51.4	34.8	163.2	20.8	\$44.38
75	Banner bone dust	9.19	.00	5.12	3.81	2.45	1.75	.0	102.4	76.8	49.0	35.0	24.74
76	W. S. superphosphate	18.96	5.54	3.83	.00	1.62	.00	110.8	76.6	.0	32.4	.0	21.62
77	Bone meal	6.47	.00	19.06	3.83	5.17	.00	.0	381.2	76.6	103.4	.0	49.14
78	Bone flour	6.47	.00	18.28	4.61	5.22	.00	.0	365.6	92.2	104.4	.0	49.95
79	Superphosphate of lime . . .	8.29	5.39	11.04	.43	4.50	.00	107.8	220.8	8.6	90.0	.0	41.09
80	Raw bone meal	4.50	.00	18.20	5.43	4.20	.00	.0	364.0	108.6	84.0	.0	47.80
81	Superphosphate	9.41	7.18	4.34	3.23	3.57	.25	143.6	86.8	64.6	71.4	5.0	39.28
82	Ammoniated phosphate . . .	16.42	.80	4.09	.95	2.32	1.07	16.0	81.8	19.0	46.4	21.4	19.04
83	Raw bone meal	6.50	.00	18.52	3.90	5.86	.00	.0	370.4	78.0	117.2	.0	51.12
84	Raw bone superphosphate of lime	8.31	1.91	10.49	4.26	2.63	1.19	38.2	209.8	85.2	52.6	23.8	35.60
85	Restorer superphosphate . .	9.10	.45	8.29	2.27	2.81	6.22	9.0	165.8	145.4	56.2	124.4	43.57
86	Brown's corn fertilizer . . .	8.25	13.78	.00	.36	2.38	.00	275.6	.0	7.2	47.6	.0	36.85
87	Soluble Pacific guano	13.96	8.95	3.03	.05	2.98	2.03	179.0	60.6	1.0	59.6	40.6	34.81

COMMERCIAL FERTILIZERS.

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88	Dissolved bone phosphate	Pacific Guano Co., Boston.	9.85	7.70	5.25	3.27	.00	1.96	154.0	105.0	65.4	.0	39.2	32.14
89	Ammoniated ground bone	Central Chem. and Mfg. Co., Cincinnati	6.08	.00	19.12	5.85	1.81	.00	.0	382.4	117.0	36.2	.0	41.16
90	Raw bone	Indianapolis Fertilizer Co.	7.76	.00	19.11	.92	3.74	.00	.0	382.2	18.4	74.8	.0	38.11
91	Banner bone dust	Indianapolis Fertilizer Co.	7.78	.00	8.33	2.76	3.57	.39	.0	166.6	55.2	71.4	7.8	28.83
92	Ammoniated phosphate	Indianapolis Fertilizer Co.	9.27	1.64	7.96	.00	3.06	.58	32.8	159.2	.0	61.2	11.6	24.63
93	Bone meal	Indianapolis Fertilizer Co.	4.09	.00	16.34	2.49	3.66	4.09	.0	326.8	59.8	73.2	81.8	42.67
94	Ammoniated superphosphate	Thompson & Edwards, Chicago . . . . .	.00	6.68	2.90	2.11	3.13	.00	133.6	58.0	42.2	62.6	.0	32.33
95	Indiana sure-growth phosphate	Thompson & Edwards, Chicago . . . . .	.00	7.27	4.32	.00	.85	.00	145.4	126.4	.0	17.0	.0	24.98
96	Kansas bone meal	Thompson & Edwards, Chicago . . . . .	.00	4.77	5.14	3.74	2.45	.00	95.4	102.8	74.8	49.0	.0	32.41
97	Dissolved bone meal	Thompson & Edwards, Chicago . . . . .	.00	5.09	7.01	.00	2.11	.00	101.8	140.2	.0	42.2	.0	26.20
98	Fine-ground bone	Thompson & Edwards, Chicago . . . . .	.00	.00	22.36	1.20	1.84	.00	.0	447.2	24.0	36.8	.0	35.87
99	Raw bone	E. Rauh & Sons, Indianapolis . . . . .	.00	.00	18.69	.00	4.49	.00	.0	373.8	.0	89.8	.0	38.59
100	Champion phosphate	E. Rauh & Sons, Indianapolis . . . . .	.00	6.60	7.28	.00	1.23	.00	132.0	145.6	.0	24.6	.0	30.79
101	Buffalo raw bone	A. B. Mayer & Son, St. Louis . . . . .	.00	4.21	7.09	3.73	2.55	3.26	84.2	141.8	74.6	51.0	66.2	35.53
102	Complete fertilizer	A. B. Mayer & Son, St. Louis . . . . .	.00	.00	21.17	2.62	4.90	.00	.0	423.4	58.0	98.0	.0	48.99
103	Ammoniated superphosphate of lime	Amor Smith & Co., Cincinnati . . . . .	.00	4.96	11.46	.32	2.16	.00	99.2	229.2	6.4	43.2	.0	32.09
104	Boss of the field phosphate	Amor Smith & Co., Cincinnati . . . . .	.00	6.33	5.31	1.11	1.42	.00	126.6	106.2	22.2	28.4	.0	26.36
105	Ammoniated bone meal	Amor Smith & Co., Cincinnati . . . . .	.00	.00	14.47	.00	4.08	.00	.0	289.4	.0	81.6	.0	32.05

THE RELATION OF PURDUE UNIVERSITY TO THE RURAL INDUSTRIES.*

BY PRES. J. H. SMART, OF PURDUE UNIVERSITY.

I do not appear before you with any pretense that I am a farmer. I have cut potato eyes, hoed corn, raked the sweet meadows, picked golden pippins, and husked corn, but I do not profess to be able to instruct you in the science and art of agriculture. I do, however, profess to know something about the condition and the wants of the country boys and the country girls. I have spent many years of my life in devising better means for their education, and when I speak to you of the relation which Purdue University sustains, or ought to sustain, to the rural industries of the State, I speak of something that touches not only the interests of these boys and these girls, but of something that concerns the interest of the whole community. This will be apparent when I remind you that out of a population of nearly two millions, less than 400,000 live in cities, and less than 200,000 live in our towns, leaving a balance of nearly a million and a half, or seventy-five per cent. of the whole population, who live in the rural districts, and who are directly dependent upon agricultural pursuits. Of our \$800,000,000 of taxables in this State, more than \$500,000,000 are invested in agriculture, and but \$75,000,000 are invested in manufacturing interests, \$50,000,000 in trade and \$40,000,000 in railroads, while the annual product of our agricultural enterprises is nearly \$300,000,000.

If Purdue could in any way make every dollar's worth of farm products worth *one dollar and one cent*, we could spend *three millions* of dollars upon it and not lose any money, or if it could in any way save *one cent* of the cost of every rod of fence in the State, it would pay to support it, even though it cost twenty times as much as it now costs.

A very good reason for calling your attention to Purdue University is found in the fact that it is an *agricultural* college, and because it is expected to be of service to the interests whsch I have mentioned, and because it is the foster-child of the State Agricultural Society.

The first important fact to which I wish to call your attention is, that our youth live in a new world. They live not only in a new world, but in a very much larger world than the world into which you and I were born. This is one of the most important facts that must be taken into consideration, not only by the parent and by the educator, but by the social scientist and the political economist. This fact must be taken into account in the home, in the school and in the college, —in the halls of legislation, in the courts of justice, and by all those who in any

* An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

way come in contact with or have an influence upon the rising génération. And yet it is a fact, which seems to be almost unknown, certainly unthought of. We deal with our young people as though Time had stood still for fifty years, and precisely as though these days were as the days when you and I were young. Ah, my friends, the days are not as they used to be. Since you and I were young, that great engine of modern civilization, the daily newspaper, has come in, the dime novel has come in, that form of pictured perdition known as boys' papers has come in, and the railroad and the electric telegraph have come in. What a revolution they have created in the mode of doing things! The boy of to-day knows a thousand things that you and I knew nothing of, and I count myself as still young. You and I knew but little outside of our immediate surroundings, our range of vision was limited, but the vision of the modern boy is widened. The history and thought of the world for a day is within his reach the morning after. What sort of a boy does this produce? Well, let me tell you, it produces a discontented boy, a restless boy, a dissatisfied boy, a boy that wants to move out, to move off; and if we do not take these things into account, and if we try to keep him with the old ways and the old methods, and if we do not manage him wisely, he *will* move out. I can not say that new measures demand new men, with safety, but I do say that new boys demand new measures. Let me add, that one of the great social, political and industrial problems of the day is, how to keep our sons and our daughters out of the mad whirl and rush of our city life, and in the pure, free air, in the pure, free thought of our rural life. How to keep them in the ranks of the great producing classes, and how to keep them out of the ranks of the great non-producing and of the destructive classes.

This leads me to the second fact which seems to me important to consider, *the steady and increasing migration of young people from the rural districts to the towns and cities.*

This involves a great social, political and economic problem. While I am not enough of a pessimist to believe that the world is growing worse, I know that in many parts of this country, and in some parts of our own State, the ranks of the destructives and of the non-producing classes are rapidly increasing, and that the producing classes in the rural districts are comparatively decreasing. I know that the flaming headlines and the brilliant footlights, that the glare and glamour and pyrotechnics of our city life are enticing young men, and young women, too, from their rural surroundings; and perhaps also they are sometimes driven away from home by thoughtlessness or carelessness, or something worse, on the part of those of us, who would have it otherwise. Who knows?

The newspaper has much to do with this; the schoolmaster, I fear, is also somewhat responsible for this, and possibly you and I.

Let me say one thing right here. Some of you were farmers possibly because you had to be, but if your boys become farmers, it will not be because they have to be, but because they wish to be. What is the remedy?

Ah, that is the question. If Purdue can help you solve the problem, it will do a great thing; and I think it can.

The country boy needs education in his business, and education outside of his business. In his business, chiefly for two reasons:

First. Because science has made such gigantic strides in the last few years, that agriculture has almost become a profession, requiring as much skill and more sense than it does to become a first-rate lawyer, or a first-rate physician, and I may add, a first-rate professor in a college.

Second. Because this is an age of fierce competition, and every man must enter the race fully armed and equipped for his work.

I need not point these statements by proof. Those of you who were at the sweet and sugary convention held in this room not many days ago, presided over so admirably by my friend Dr. Furness, must have learned that it took patience and skill and a high order of science to make an investment in sugar-cane profitable. Should you go to Door Village you would discover that it takes a very high order of scientific ability to bring out the best results from Clydesdales and Cleveland bays. You may go to the farm of my friend, your honored President, and learn something of the same sort. I am sure that it takes more skill, more scientific knowledge than an average college president possesses. With what a keen eye must the market be watched, and the movements of the bulls and bears. One must know the difference between an honest deal and a dishonest corner. He must watch the great commercial movements. He must not only watch the rain cloud over his own head, but he must know that it is only by watching the climatic influences all over the world, that he can tell when to sell and when to hold. He must of necessity understand political economy; the laws of production, the relation of capital and labor, of supply and demand, the laws of consumption, of distribution and of exchange.

It is useless for you to say to me that you have succeeded without this knowledge, for indeed you have not. You have a knowledge of these things, and you have gained that knowledge in the great University of experience, and experience I know is the greatest of teachers. But will the farmer boy of to-day take it in, in this way? Can he take it in, in this way? Would you wish him to pass through the school which you have passed through if he would? Is there not a better way?

I have said also that he needed to be educated outside of his business. I do not mean by this *from* his business. I mean that he must be prepared to assume some relations that are not connected directly with his business. He is to be the head of a family, a member of society, and a citizen of the State,—a man among men.

It will be a sorry day for us when we have thinking men who govern and workmen who are governed. We want no governing classes in this country, we want no caste. We honor the lawyer, the doctor and physician, but we bow our heads to the men who produce. In a Republic we must have men who work and do something more.

You realize these things and you send your sons and daughters to schools, and now Purdue, your own foster-child, comes and asks for a share of your children. You must not bar the way to those schools, that will graduate them into the profession of law or of medicine or into the ministry, if some of them are so inclined, but you may send some of them to the Agricultural College of the State, which will endeavor to give them, besides a solid English education, a knowledge of the science and art of Agriculture. It will bring them into contact with things. It

will endeavor to do all that can be done by a college to make practical farmers of them. Purdue can not do all that has to be done, because independent, practical experience is certainly necessary, but it will at least lead them into a favorable atmosphere and give them a bent in the right direction.

I have said that Purdue was in a sense your foster-child. It needs your kindly care and assistance in two ways. I say it in two words, *students, money*. With these Purdue will do its work well.

RELATION OF FARM LIFE TO THE PROSPERITY OF THE COMMONWEALTH.*

BY DR. W. T. STOTT, OF FRANKLIN COLLEGE.

It is often said, by way of gentle criticism, that the less a man knows of a subject the more he can tell, and the application seems to have peculiar force when "them blessed literary fellers" attempt to enlarge upon the subject of farming. There doubtless is some justice in the criticism. I knew a college president of whom it is said that he asked a farmer how much straw a pig would eat in the course of the year; and I heard of a Congressman, who pulled up all the garden beans, alleging that they had been very carelessly planted upside down. But, gentlemen of the State Board of Agriculture, if you knew that a man had at sometime in his life been capable of plowing a straight check-row across a twenty-acre field; that he had in several instances proven that he could turn sod clean and neat around a stump with spreading roots; that he had mowed away many a ton of hay, and had often swung the cradle all day in the fields of golden grain—you might listen to what he had to say with some attention, and might possibly feel a grain of pride in that he was, once at least, a member of your craft. For several years I had the pleasure of bathing in the sunshine of the farm, breathing deeply of its pure atmosphere, and relished the sleep that recuperates the body after a day of decidedly severe labor, and I confess at the outset that I come before you very strongly prejudiced in favor of the farm; but I trust that I am not possessed of a prejudice without eyes.

The theme of the evening, as announced by the programme, is "*The relation of farm life to the prosperity of the commonwealth.*"

Among many other elements that enter into a State's prosperity I shall refer to four, and the first to be named is this:

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

I. RAPID INCREASE OF FIXED CAPITAL.

It is evident that if a people were not to increase the sum of its fixed capital there could be no promise nor prophesy that the necessities of life would be any more plentiful next year than they are this, for there would be no more invested in the enterprise than now. If a dozen farms yield enough profit to warrant the purchase of another farm, then we may most naturally expect that the aggregate products, the following year, will be at least one-thirteenth larger than they now are. It is especially true of the farmer, that he is constantly changing circulating into fixed capital. With the sale of almost every crop he enlarges and improves his barns, and the general apparatus with which he works, such as fences, drains, roads, farming tools, etc., and not infrequently he adds to the number of his acres. Indeed, the farmer talks of hard times if he be not able every year to increase his fixed capital. On the other hand, there are many seasons in which the manufacturer and merchant are content if they are able to meet current expenses without drawing on their capital. Doubtless fifty merchants and manufacturers fail to every single failure on the farm.

Many a young man is content if he can display a gorgeous watch-chain and finger-ring, and have a fair amount of silver in his pocket, while the farmer's son is willing, for the most part, to undergo the seeming poverty implied in wearing common clothing and a lack of loose change, if he can only add somewhat to his stock of sheep, pigs or calves, or to his bank account. The wise farmer teaches his son the value of fixed capital. Some statistics of our State, quite accessible, will show that what has been suggested is true. Using round numbers, we may state that in 1850, there were in Indiana 94,000 farmers, and in 1880, the number ran up to 194,000. In 1850 the total sum invested in farms and implements was \$143,000,000; in 1880 it was \$656,000,000, showing that the sum had more than quadrupled. The total population in 1850 was 988,000, and in 1880, 1,978,000, showing that it had but doubled in the same time that the value of farms and implements had almost quintupled. It is fair, also, to presume that this great accumulation of fixed capital is the result of prosperity of the farmers themselves. Besides, it is quite certain that much of the capital accumulated in agriculture has gone into other channels than that of agriculture. In 1880 there was invested in the manufactories of our State \$65,000,000. Now, most of these are so new and on so large a scale that they could not have been built from the profits of previous manufacture, and commerce is too limited in our young State to warrant the belief that the immense dry goods and grocery establishments to be found in many of our cities are the accumulated profits of commerce itself. Capital has evidently gone from agriculture into manufacturing and trade. But with all this there is no manifestation of decline in the farming industry, not the least. Out of a population of 635,000 above the age of ten years, we have 331,000, or more than half engaged in agriculture.

Again, it has long been a matter of interest as to how capital and labor should come to a complete and happy mutual understanding, and it has been said that if these could thoroughly unite, each helping the other, wealth would be much more certainly and rapidly accumulated. Much has been written to convince capital and

labor of their mutual dependence and friendship. On the farm this whole question finds a simple and most effective solution. For the most part the capital and labor unite in the farmer himself, and there is no conflict. Fredrick Douglass once said: "People say the white and black man can not live together in peace—all I have to say is that they live together very harmoniously in me." And so the farmer combining in himself both capital and labor, ensures their harmonious co-operation.

II. THE COMMONWEALTH IS PROSPEROUS AS ITS CITIZENS HAVE BODILY AND MENTAL VIGOR.

The further east one travels from this point, the smaller are the men and women found to be, and the more agriculture is displaced by manufacture. On the other hand, as was ascertained at the Cincinnati Exposition a few years ago, there is a district of large men extending west from Ohio, and including parts of Kentucky, Indiana and Illinois—a district peculiarly agricultural.

On the farm there is abundant and varied exercise, fresh air, usually good food, plenty of sleep, and no mock modesty as to size of hands or feet, or body in general. The sedentary life of the city brings aches and pains that check the full, strong growth of body. The hollow conventionalities of the social organization, with the want of nature's freedom, take away the real fresh gush of conscious health, and by imperceptible degrees there grows an admiration and longing for diminutive proportions of body. The small hand and foot and the doll face are at a premium. If a young woman begins to assume respectable proportions of body, she sheds tears, and asks her druggist for Allen's Anti-fat, and her dealer in woman's furnishing goods for extra strong corsets, for she is afraid of losing caste. The same general sentiment is manifest on all sides. Free art leaves the statue, and is content to spend itself upon the statuette; it leaves the canvas, and is content to try to put a landscape on a plaque or a clam shell. It is seen in the almost insane hankering after diminutive endings to proper names. Where, in all this city, could you find plain, honest Margaret Jane Smith? It will be Madgie J. Smith, or Jen. M. Smith, or J. Madgie Smith. The criticism holds of young men as of young women—and the false sentiment is invading even the farms. In registering the names of students in the institution with which I have the honor to be connected, we are obliged to stop the signing in almost every case, and force the confession that while the real name is, for instance, Catherine Henrietta Jones, the signature is going to be Nettie C. Jones. Who doesn't know that in what is called elegant society, the ruddy cheek of the strong, healthy girl is pronounced uncultured, as compared with the intellectual, palid, æsthetic cheek that has been made so by the proper quality, quantity and proportion of costly cosmetics? And who does not know the false standard that makes a strong, lithe, large body gross, as compared with the little, neat Martinet figure.

Now, this is not as true of farm life as it is of life in other places. And while it may seem a trivial matter, the consequences are important. Great brains and souls, as a law, can not dwell in diminutive bodies any more than an oak can find a home in a flower-pot, or a whale in a fish-pond. A great people must come of

good sized and physically strong ancestors. The leaders of the revolution were, as a rule, men of large bodies, and their mothers were women who were able to labor hard and long. Of course there are noted exceptions, but they only emphasize the rule. Very small people, in general, have done little that is radical and great in the history of the race. The Bantam hen and rooster are spry, their eyes are bright and their feathers glossy, and they are nice ornaments for a painted and tinsel coop; but if a farmer wants eggs and fowls to sell by the pound, he keeps Shanghais, and Brahmas and Buff Cochins. Many a farmer keeps Jerseys for ornament on the farm, or possibly to furnish a superior kind of cream for coffee, but when he wants something that will bear down on the scales, and make its way into the markets of the world, he chooses Short-horns, Herford or Polled—cattle of size and compactness.

The men whom I address know too well for me to dwell upon it that the men and women whose great souls have wrought grandly for the glory of God and the good of men have been blessed with vigorous bodies. But we care nothing for physical proportions and vigor only as we are interested in mental strength and discipline. That farm life is adapted to mental vigor may be shown in a number of ways. It is a well-known principle that a single process of labor, especially if that process requires but little attention, tends to dwarf the mind and sap its fountains. In the making of watches, for example, some of the processes are so simple that they are almost automatic. Now, if a man should be kept for years at one such process, you might expect to find a mere pigmy in thought. There would be manifest helplessness and dependence. Manufacturers often guard against this evil by changing their men from one process to another. In farm life, however, the tendencies are all the other way. A thousand forms of activity to secure as many different ends take place every year—every week. Emergencies arise that develop to the highest point presence of mind and fertility of expedient. And this is about as true of women as of men. In the home are bread and bed making, garment fitting, management of the dairy, canning of fruit, care of flowers, cultivation of music and painting, care of sick, and the purchase of groceries and dry goods. Where, but on a farm can you find a young woman who can become baker, chamber maid, manufacturer of soap, dressmaker, florist, entertainer of visitors in the parlor; who can, when the time comes to prepare dinner, take the dog and catch a chicken, behead it, pluck it, bake it, and have it on the table in superb condition; and who, in the late afternoon can go to the pasture and bridle Dobbin, hitch him to the carriage, drive to the village with the surplus butter and eggs, get the mail, come home and pail the cows, and then, if her father and brothers have not yet returned from their work, go into the barn and put hay and corn in the stalls for their horses? Nowhere but on the farm can you duplicate that. How in contrast is that other young woman not on the farm, who can barely summon courage enough to prepare her toilet for breakfast when the servants ring the bell announcing that everything is ready! Let the independent, wide-awake, large-bodied, cheerful, healthy, young women be greatly multiplied. They are to become the wives of fortunate husbands and the mothers of a line of workers and thinkers worthy of the century and the country in which we live.

Farm life has a greater variety of labor, if possible, for men—care of stock, ex-

periments with seeds and soils, building, examination and selection of machinery, purchase of stock, finding a market, drainage, training draft and saddle horses; indeed, there is no assignable limit to the variety that mental effort has on the farm; and this very variety is a means of mental vigor. The late war furnished striking examples of the superior courage and mental activity of the farmer's son. I had the fortune of being constantly with troops from the farmers of Illinois, Iowa, and Indiana. After a hard day's march, they came into camp not to sink down with fatigue and despair, but you would see them, the moment the gun, cartridge box and knap-sack were laid aside, go to the nearest water, bathe their feet, find wood for fires, go back to camp, cook the meal and eat it, gather moss, or brush, or grass, or stalks for a bed, and having all the "chores" done up, get together in companies, produce the singing books, and make the woods ring with "Star Spangled Banner," "My Country 'Tis of Thee," etc., till you would suppose they were on a pleasure excursion instead of a military campaign. I have seen other soldiers come into camp after a hard march, or rather I did not see them, for but a few in each company had the pluck to keep in ranks, and after they had reached camp, they threw themselves on the ground to rest and to sleep. The next morning found them unable to proceed, from swollen feet and lack of strength. And on the skirmish line, the independence of manhood that farm life gives was even more manifest. There stands the straight, stalwart soldier—every action seeming to say to the enemy's skirmishers, "Here I am, you may hit me, but you can't make me quail, and look sharp, or you will fall before you pull trigger." And when these men came to the first fight in the series that preceded the taking of Vicksburg, I saw them, for lack of a commander, of their own motion, charge across a field, loading and firing as they ran, and dislodge the enemy. Of the commander, who was not a farmer, I will not speak, for his campaigning is over forever. Another line of illustration of the principle occurs to me. At a late convention of Indiana Baptists in this city, it was ascertained that at least 75 per cent. of the ministers present were reared on the farms. In Franklin College, in an enrollment of 150 students, at least 105 are from the farms, 74½ per cent. of those who have graduated are the sons and daughters of farmers; and I doubt not, the same relative statistics are as true of other institutions of higher learning.

III. THE PROSPERITY OF THE COMMONWEALTH IS ENHANCED BY THE STABILITY OF CHARACTER OF ITS CITIZENS.

The whirl and buzz of business push, so constant in the metropolis, do not reach the farm. There all moves on with a constant but measured tread. The corn does not ripen in a day, nor does the meadow reach its maturity. The distance of field from field and farm house from farm house, gives an air of stateliness and permanency not to be found elsewhere. It takes months, and in some cases years, for live stock to reach the right size and condition for the markets; and all this steady movement of affairs has its effect upon the character of the farmer himself. He comes slowly to his convictions, and by degrees he forms his habits. But when these convictions are once made up, and these habits once formed, there is a permanency and persistence that must challenge our admiration. The agricultural

community forms what I shall call the base-burner element of the commonwealth. Anthracite kindles slowly, and does not sputter nor sparkle, but when once kindled it glows intensely, steadily and long. So is the great body of conviction, sentiment and thought in the farming districts. Men become strong and clear and positive, and they are established in their goings. Ask the pastor who has been in charge of both a country and a village congregation, and he will tell you that farmers' families retain their interest in religion, and continue in their purposes of piety whether they are visited every week or not, while the village congregation is held together only by the utmost vigilance and earnestness. The politician will tell you that his farmer constituents do not need the haranguing to keep them loyal to the party that is needed in the town. Finally,

IV. THE COMMONWEALTH IS PROSPEROUS IN THE RATIO THAT PUBLIC MORAL SENTIMENT IS CORRECT.

It is not worth while to say that the morals of the city only are vile and those of the farm pure, for that would not be true. But it is true that the very worst phases of moral depravity are to be seen in the city. The vile men and women throng to the cities, and often threaten the good order that otherwise would prevail. On the farm there is an absence of temptation such as is found on the streets of the metropolis. If I were a citizen here I might strongly object to the passage and operation of the Metropolitan Police Bill, but if the time ever came that the sand-lot element outvoted the respectable element I might then be glad that the police force was chosen and controlled, not by the sand-lotters, but by the average good sense of the whole State. New York State could have carried many a good measure that it has failed to carry if it had not been for the bad influence of New York City.

In the late temperance contest in a sister State, who will say that if the vote of the cities had been left out the prohibition measure would not have carried? Test the agricultural districts on the great moral issues that come before us, and you will find them generally correct. The great second sober thought of this country is in the rural communities, and more and more this second thought is to be recognized in all our legislation and in the unwritten constitution of the nation. That farm life should be favorable to morality need not seem singular. Who is brought in such close contact with nature as the farmer, and who more clearly recognizes his dependence on Providence for the fruits of the earth in their season? Who is led so distinctly to look through nature up to nature's God as that man whose labor leads him out under the blue canopy of the day and the starlit firmament of the night? The songs of the birds chasten his soul, and the flowers lead out the better elements of his nature. If it be true that the undevout astronomer is mad, then is the immoral farmer out of all keeping with his vocation, for he disregards the God of the seasons, the fruits and the herds.

A reflection or two and I have done.

As a people we are immensely interested in the farm industry. Many nations have conquered, but none, like Rome, secured by the plow what they had won by the lance. The greatness of Rome was built on the most extensive and immediate

mastery of her citizens over her soil. There can be no national greatness that does not rest on the intelligence and virtue of the great mass who plow and sow. As a poet has sung:

“Princes or kings may flourish or may fade,
A breath can make them, as a breath has made,
But a bold yeomanry, their country’s pride,
When once destroyed can never be supplied.”

Again, the false view that leads the young man to leave the farm and seek the city should be and can be corrected. Let the boy have some share in the products of the farm; let him feel that he is joint-proprietor; have him enter into the experiments made in crops and live stock; give him the best papers on Agriculture and Horticulture; intrust him with a hive of bees. Make his sleeping-room the most pleasant of all the chambers; hang it with engravings and paintings; above all, do not tell him that he does not earn his salt. With such attention and encouragement he will remain on the farm; he will seek a liberal education that he may be a more intelligent farmer. He will not envy the professional men, whose livelihood is often precarious at best. As a poet of our own State has sung:

“But, nevertheless, I like my farm,
Its out-door labors caused a charm
To ward off gossip and social harm,
Political rant and treason;
It is fresh and fair when spring is here,
Rich when the harvest time is near,
Poetic when autumn leaves grow sere,
And grand in winter season.

“Here, free from all conventional rule,
I can follow my fancy calm and cool,
And learn my lesson in Nature’s school
Of the golden lore she teaches;
Can learn from butterflies, birds and bees,
From whispering leaves and errant breeze,
And countless innocent things like these,
Under the shade of my beeches.”

There is, however, one untoward feature to which the farmer can not shut his eyes. Suicide and insanity gather a very large per cent. of their victims from men of his craft. We would not have anticipated this. The very favorable conditions of physical health on the farm would seem to indicate just the opposite. What, now, is the true solution of the sad problem? I will suggest this: For the best health and balance of mind, body and brain must be developed together. To neglect the one is just as fatal as the other. The length of life of the average farmer ought to outrun that of the minister or teacher or author, but it does not; and as I believe for the reason that the farmer neglects the full culture of the brain.

And what is Providence indicating by the vast array of labor-saving machinery applied to agriculture? Is it not this: devote the leisure that is now possible to the cultivation of the mind and heart. Let the time hasten when, on the farm, the magazine is as highly prized as the mule, and the good book is given as much thought as the bull; when a library will be as necessary a part of the home as the larder, and poetry and painting will be as assiduously cultivated as potatoes and pigs; and when the fruits of learning and beauty and truth will be as earnestly and intelligently sought as are the fruits of the garden, orchard and field. When all this is accomplished, we shall see in our State, and in our country, the noblest and best aristocracy that our institutions are able to produce—an aristocracy of industry and learning and virtue. For the farm naturally makes the man broad in mind and heart, like its fields; fresh, like its morning dews in June; joyful, like the songs of its birds, and pure as the blue sky that overspreads it by night and by day.

THE PROFITS IN FARMING.

BY PROF. F. A. FRIEDLEY, OF NEW ALBANY.

To very many, farming does not seem to be a profitable business, and the proceeds seem to come in so slowly that some have doubted whether there be any profit or not. The slow development of the tree into fruit-bearing, of the wheat-sowing into harvest, of corn-planting into the husking, would do very well in colonial times, but since each colony has grown into a State, and that State into a great commonwealth, few people have the patience to be true farmers. It is a fact that many, themselves engaged in farming, will doubt the statement given as a subject to this paper.

Years of toil have given them no increase of possessions. The acres on which they commenced to farm have not grown to other acres, but have only become the poorer as each year's living has been taken from them.

It is only a living—hardly one—and nothing more. But it is not my purpose to give an answer to the man who from any cause has failed to realize on his farm investment.

His argument is unanswerable. It is the rather to give encouragement to the beginner and some satisfaction to the man who has made much or little on his farm.

Considering only the commonest methods of producing and selling hay, corn, oats, some vegetables and small fruits, let us see whether there is any profit to the

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

man who industriously pursues these branches of farm work. Stock and fruit raising have always yielded excellent profits, and he is usually counted a poor farmer who sells his hay and corn and oats, and does not feed it. If these old time methods will give some honest gain to the man who employs them, what may we not expect of him who uses the most advanced methods in his farm pursuits?

In this State the various agricultural interests are represented by \$239,000,000 in round numbers, or one-third of the taxable property of the State, according to Cram's Atlas.

As a fact in political economy the soil is the greatest source of wealth, and that same book restricts us to three sources of wealth, the soil, the mines and commercial values put on by artisans and tradesmen. As compared with all other sources of wealth, the agricultural interests do not make an unfavorable showing.

In writing to farmers in various parts of the State for information on this subject I have been much surprised at the results given by many of them. Without a single exception their figures show more or less profit in the past year.

I did not select the best farmers of the State, but took them as I happened to know them or know of them. From a man who has raised corn in the White river bottoms I have these facts: He raised this last year fifty bushels of corn per acre. He valued his land at from twenty to forty dollars per acre, which is an average of thirty dollars per acre; he sold that corn at thirty cents per bushel, low figures even for this year; the expense of raising and putting into market the one acre of corn he puts at six dollars and fifty cents; adding to that three dollars, ten per cent. on the estimated value of the land, will make the entire cost nine dollars and fifty cents, leaving him an actual profit of five dollars and a half per acre. Some other parties gave me figures on corn raising more than doubling this profit, and in one instance making the profit three times as great as this, or sixteen dollars and twenty cents. From a man who has at this time three hundred and five acres of wheat sown, and who depends upon that solely as a money-making crop, I got these facts as to what he did last year: Average yield per acre, twenty-two bushels—the same ground brought year before last thirty-four bushels per acre—selling price, one dollar and one cent; cost per acre to produce and put into market, five dollars and fifty cents; his land is valued at one hundred dollars per acre; ten per cent. of that added to the cost of producing and selling would leave a profit of six dollars and seventy cents per acre. Another man, who raises from twenty to fifty acres of wheat per year, and who incurs the additional expense of fertilizing, gave figures which showed a profit of eight dollars and thirty cents per acre. A man who has depended upon raising and putting into market hay, and who has made himself comfortable in this world's goods at it, gave figures which showed a profit of seven dollars and fifty cents for each acre.

In raising cabbage and potatoes the profits seem to be much greater. One farmer, who depends largely on potato raising, gave the following: Yield per acre 40 barrels; cost of producing and putting into market the same, \$16.50; value of land, \$75 per acre; selling price, \$1 per barrel, giving a net profit of \$16 per acre.

A friend of mine gave me the following statistics in cabbage raising for this year: Cost of production and selling one acre, \$60; value of land, \$300 per acre

selling price, \$154, giving a net profit of \$64 per acre. From several others the figures showed much larger profits, one reaching \$180 per acre net profit. The facts in raising strawberries are even more significant than these. One man gave the actual result of last year as follows: Four acres of strawberries on land valued at \$50 per acre; entire cost of producing and marketing, \$1,120; actual selling price, \$2,754, giving a net profit per acre of \$408.50. I could give you figures from berry raisers showing more than \$600 profit per acre. This is certainly sufficient to satisfy the most casual observer that there are some profits in farming. In fact I know of no legitimate business more profitable. There is money to be made at it, greater fortunes than at anything else, *except dealing in futures.*

The occasional failure of crops does not seem to stand much in the way of money making. Either a drought or a flood seemingly allows the soil to renew its vigor and strength and produce more abundantly the succeeding year. Nor is it all evil when a crop is short, for prices are then better, and the actual result of a year's work in dollars and cents will be about the same as that produced by a full crop. Then the variety of crops that the soil of Indiana produces will put an entire failure beyond possibility. A short wheat harvest is very frequently followed by an immense corn crop. The early potatoes may prove a failure, but the later varieties and the cabbage crop will give excellent returns.

Nor is there much danger of the supply ever exceeding the demand. What a man raises in Indiana can always be sold at some price. The ten years preceding the last census showed an increase of population in the State of 17 per cent. And during the same period an increase in farm products of $2\frac{1}{2}$ per cent. This would show an increasing rather than a diminishing market, and possible profits even greater than those that have been mentioned. Besides this, the cities of the State have grown in population much more rapidly than the rural districts, they having increased in population 23 per cent., while the farming portion has only grown 11 per cent. With all the helps in modern machinery, farm labor has increased in price, and not because it has come in competition with manufacturing labor, but because the work can not be done unless better prices are paid for it. Even then there are many fields uncultivated, because no man can be hired to plant or sow the grain. If these facts be taken into account, and they must be, there is certainly no immediate danger of a farmer failing to get a fair profit in any careful investment. Profits will increase rather than decrease.

Again, in investigating this subject, I have been surprised at the number of men who cultivate small farms—say from ten to eighty acres—who not only make a good living, but really have larger salaries than many of the men well up in the professions. It is not unusual for these small farmers to make from six to twelve hundred dollars per annum. I know some good school teachers who do not do nearly so well; some good lawyers whose annual saving would not be worth as much as one churning of butter from this same man's milk-house. Comparatively few farmers have ever gone into bankruptcy. As mean as many of them have been to the soil, and as poorly as they have cultivated it, yet a greater proportion of them have been successful and made a competency than the men of any other vocation.

Each year has seen some additional value attached to the acres which have been well cultivated, until many a man has grown rich simply because his farm has grown better, while he, year by year, has taken actual profit. The well-filled barn and the well-kept house are not fancies of the brain, but actual facts, met with everywhere in our farming districts.

Some men cultivating small farms make a good showing for the past year. One instance coming to my notice in the correspondence of the past few weeks will suffice to illustrate. One man, no more than ordinary in his ability to manage and work a farm, cultivated this past year about twenty-five acres of land, for which he paid \$250 cash rent. After the expenses of cultivating and putting the crop into market had been paid, and enough to keep family and stock until the next crop would come into market had been put away, he had left, according to his own figures, \$600. This would give a net profit above living of \$24 per acre. I do not say that every man who rented ground could do thus well, nor that this same man could make as good showing every year, but that he has done so once is evidence sufficient that money can be made farming.

It might be well to add this good showing was made by raising cabbage, potatoes, onions, and gardening quite largely, as he was but five miles from an excellent market. Seeking information on this subject corrected false impressions which had been made on my mind. It is not true that a majority of the boys leave the farm to meet the vicissitudes of life in other trades and professions. On the other hand, a large majority of them remain on the home place. And there is no vocation in this State where so large a proportion of the men now in it have, from childhood, followed the same. Very few of the farmers have gone to farming after they have reached their majority, but most of them have followed the profession of tilling the soil from childhood. While the figures have in some instances astonished me, I am convinced that farming is a safe and reliable way of making money. The labor of the farm is dignified and honorable, and he who faithfully plants and sows, will in due time reap.

THE DEVELOPMENT OF THE MOST PRECIOUS RESOURCES OF THE STATE.*

BY DR. LEMUEL MOSS, OF THE STATE UNIVERSITY.

I am glad, indeed, of the privilege of standing before you for a little while this afternoon, and while I shall endeavor to express some of the convictions of my mind and heart, I remember the courtesy of a few years ago, while you listened to me, and will speak in the most informal manner possible, believing we are alike interested in everything that comes before us, in reference to the development of our commonwealth; increasing our riches and strengthening our intelligence and promoting our influence on all sides. I believe I was announced to speak of the "development of our most precious resources." A large subject in a general topic. Going back to the creation of the world, as I read it, we are told that the Maker of all things looked upon his work and saw that it was good; that it was what he intended, fit for the purpose for which he designed it; that it was appropriate and worthy of him; and worthy also of the being to which it was to be committed. I find also, a little after, in the account of the creation of man and establishment upon the earth, he was told to subdue it and till it. Possibly it might be said that there is some discrepancy arising, and in the implication of imperfections when the Maker of all things saw it was good, and so pronounced it, that there was a kind of going back to the recognition of some defect somewhere, when he afterwards called upon the being he made and commanded him to subdue and bring under his control the very earth that was made good in all its parts. There is to my mind a belief that the earth must be subdued, not for the earth's sake, but for man's sake. Good as the earth is, it is not just what he wants—it is good to be made over. It is no reflection, as we shall see the wisdom or goodness or power or love of God. All say that the world he has made must be made over by man. It is absolutely a necessity for man's existence. He finds nothing just as he wants it; neither food nor clothing nor shelter ready made by the earth; but he finds abundant material out of which these wants may be supplied, and finds a vast laboratory of all sorts of things in the forest and earth, in the sea and air. The necessity is upon him. If these things are to minister to his wants he should go out and conquer, and out of the resources of nature supply himself with food, clothing and shelter, multiply and improve, the ships and fleets we build, and all our methods of transportation, as well as devices and conveniences with which we surround ourselves.

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

A man must achieve this conquest or die ; he must conquer the world, or the world will conquer him. He will freeze to death unless he will, in some way, exercise the intelligence and will, subdue the earth and make it his servant, and not his master and lord. We are surrounded, then, by these two great facts: Here is the earth, with all its material, on one hand, and here is man on the other hand, with his wants. Earth is made to supply his wants by his mastery of it—by his bringing out the resources and compelling them to come to his use. His conflict is going on to-day as it has been from the beginning. Each succeeding century has some new trial. In the construction of machinery, the tool of any kind man has discovered. He wants and desires or longs for some result or effort, or some necessity. He does not find it ready to his hand. He sees these conveniences can be met if he had the power to accomplish a definite end. If he can build a wheel and put it under water, and by the force of this water a stroke of machinery turns, perhaps his desire may be gratified. Another, impelled by the same force of nature, goes to work and applies all his energies and skill, and the result is his steam engine, his plow, his loom, and perhaps many other kinds of machinery. This device comes from his own thought that he might reach some result by which he can reach other devices. He has brought his mind into some relation to nature, and compelled these crude materials and undeveloped powers, through the activity of his mind, to serve him and minister to his wants. Man must subdue the earth, and not the earth subdue him. If you go among the savages and become acquainted with savage life, you will find him a man of few wants. You go up in the school of civilization, and find the wants multiply. Should the desires increase on account of civilization and refinement, multitudes of desires set to work all the machinery of our modern civilization.

Agriculture and manufacturing industries are stimulated and improved when these wants are multiplied. Here, then, is the marvelous problem of the development of man by the mastery of the world, and who has brought out of the earth by man's skill and persistent effort, and made sure his own growth, intellectual and spiritual powers, and that comes to us with the providence of God's arraignment, by which the world must be made over. It is the design of the Maker of man that by this very process man shall be brought up until he can comprehend the deep resources of the world. The history of manhood from the beginning is simply a history of this endeavor from man to the mastery of the world. We fix our attention by what improvements? By the development of the resources. We look over our own State, and see here these 30,000,000 acres of land. What can be done with these vast forests and prairies—these quarries of coal and mines of mineral deposits? There is scarcely any end to possibilities that lie concealed in our territory, small as it may seem compared with the greater States of this nation. We say there is no fear that the resources of our State will be exhausted, but there will be an increased activity going forward in the various developments by which these materials may be made to minister to our wants. There are possibilities and enlargement in the resources of our State. We can see the time coming when the yield of our wheat is larger and better than now, and the yield and grade of flour is better by improved processes of manufacture, and will be more useful and whole-

some than now. We can take a pound of iron and follow it through the genius and skill of man until it is worth its weight in gold, because of the thought put into it. The resources of our commonwealth may be developed by human skill and industry. The march of man's mind, heart and love to this gift of God has to result in the almost infinite increase of our resources to man's advantage. I have asked you to look in this way at the great resources of our State that hold, and strengthen and conduct the powers of the commonwealth, and to the highest degree and extent, are not the resources that are hidden beneath the soil or immediately on the surface a valuable study to the population of the State? I find God has done what he has for man's sake, and made things so that in the conquest man shall be elevated and advanced. He has given him the power of thought, will-power to feel and appreciate and enjoy the good and beautiful and true.

I am talking to men who like improved methods of development. If there is a better curve for the mould-board, or if the people can apply better fertilizers for the field, I want to know what it is; a better kind of wheat or corn, or method of improving my stock, and more suitable for the purpose for which I want them, I want to know how it can be done. We ask, is there anything man can do by the application of his activity? We want to know if there is anything by which his thought can be applied to various methods of improvements and in any way contribute to the resources of the commonwealth or nation? Can he do anything in the field or shop? Is he worth anything in the pursuits and industries? You are thinking of the arts in which human ingenuity, human power and skill can be made to apply to these methods to the State and the Nation, and that man's comfort and convenience may be advanced. This is right and wise, but I want to ask you to look to the reverse, and take to yourself the thought that it is not so much that we should be made to advance the resources of the material side as the resources of the State should be made to advance the intellectual and spiritual development and growth.

I am glad to believe that the very organization of our industrial societies has directed attention to the intellectual and moral improvement of our young people; if the boy and girl is taught to be industrious, honest and energetic, no matter what his work may be, his impulse is the highest position he possibly can in any way reach. It is a quality to develop themselves of a true and worthy manhood. I wish we might be as careful in this direction as we are in the cultivation of our crops and our stock, and if a man should undertake to debase or degrade our children, that they should be as severely punished as they surely would be were they to injure our stock. If a man were to sow murrain among your cattle, or weevil in your wheat, they would receive the severest punishment that the law defines. But how do we take those thrusts at the purity of our manhood that are undermining and sapping the moral virtues of our people. I come before you with this simple plea. I ask that your attention may be directed to this great fact that it is manhood of a nation that maintains the dignity and purity of a commonwealth, as they stand there in the beauty of their manhood and womanhood, a statute that which is most precious in any commonwealth or community, and we shall, therefore, direct all the energies and agency to the production of this true and worthy manhood and womanhood. I love to admire the progress in the last twenty-five or

thirty years, and that there is a growing desire to still improve; that there is, from all those various sentiments a growing determination that our commonwealth shall stand foremost in intellectual and moral strength.

I thank you, gentlemen, for courtesies extended, and the kind attention you have paid me.

THE AGRICULTURAL COLLEGE.

ITS MISSIONS AND NEEDS.

(Paper read before the State Board of Agriculture at its January meeting, by Prof. W. C. Latta, of Purdue University.)

The purpose of the national education land grant act in 1862 was to establish and maintain, in each State, "at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts."

I. MISSION OF THE AGRICULTURAL COLLEGE.

It is evident from the wording of this act, that our national law-makers intended to found colleges whose leading object should be to promote the manual industries, and this was to be accomplished through the education afforded. We shall doubtless all agree that the men who passed this law had a clear conception of the true purpose or mission of the Agricultural College, but with reference to the means of accomplishing this desirable end, there will be, as there always has been, wide divergence of opinion. Of the forty or more colleges profiting by this national appropriation, no two are exactly alike; and probably not one of the entire number is fully carrying out the provisions of the act of 1862. It is not to be inferred from this that these colleges have failed—far from it. They perhaps have done all that was possible under the circumstances; but it must be admitted that they have not had that measure of success which they deserve.

OBSTACLES TO AGRICULTURAL EDUCATION.

The fuller our knowledge of the difficulties that beset the Agricultural Colleges, the better able shall we be to devise means for making these colleges more successful in the future. Let us, therefore, briefly consider some of the obstacles that impede the progress of agricultural education.

1. The organic law:—One of the hindrances is to be found in the law already referred to, which provides for classical and military, as well as scientific and industrial training. This embraces more than can be accomplished in a four years

course of study. Something must be omitted. The sciences can not be left out because of their intimate relation to industrial pursuits. There must be a good practical training in English. The technical instruction must of course have a place in any industrial education. Hence it follows that the dead languages are practically excluded, not as undesirable, but because there is no room for them in a scientific and industrial course of study embracing but four years.

2. Associating industrial with non-industrial colleges:—The cause of industrial education has been further impeded by associating agricultural and mechanical colleges with classical and non-industrial institutions. As a rule, which has no exceptions as far as I know, the result of such combination has been unfavorable to industrial education. Where students have the privilege of choosing between industrial and non-industrial courses in the same institution, the number entering the former is pitifully small. Very many more students are found in those agricultural and mechanical colleges which have kept entirely aloof from other educational institutions.

3. Meager equipment of industrial colleges:—Another hindrance is the meager equipment of these colleges. They necessarily require extensive and expensive apparatus and means of illustration, as the problems of the class-room must be demonstrated in the laboratory, the field, the stall. The national endowment is insufficient and must be supplemented by State aid. But State appropriations are variable, the amount appropriated fluctuating with the temper of the legislature. More than this, they are uncertain; and, as a result, some of these colleges have been kept in suspense—hanging in the balance, as it were,—for weeks and months, with about an equal prospect of life and death.

4. Not generally demanded:—The most serious obstacle to the success of the agricultural colleges has been, and still is, the lack of demand for industrial education. Especially is this true of agricultural education. The farmers do not generally manifest a desire for it.

AGRICULTURAL EDUCATION NOT POPULAR—WHY?

The agricultural colleges were designed largely, if not chiefly, to benefit agriculture. Why are they not more generally patronized by farming classes? There are several reasons.

1. Agricultural colleges not known:—These colleges are not generally known in farming communities. There are hundreds and thousands of farmers in this country who have never heard of the agricultural colleges.

2. Agricultural education yet in its infancy:—These colleges of agriculture are still young—something new, an innovation. To some people the most convincing proof of the merit or success of anything is that it is old. Men of this class have great veneration for wrinkles and gray hair, and apparently forget that we can not measure a life by its summers and winters. No more can we measure the usefulness of a college by the years it has numbered.

3. "The farmer does not need an education":—There is a very general impression among farmers that a man does not need an education to farm. This impression frequently crystallizes in words like the following: "If a young man is

going to be a lawyer or doctor or preacher, an education is all well enough; but if he expects to be a farmer what's the use of going to school?" Let me bring this point home to you my fellow-farmers. How many of you are educating your sons for the farm?

4. Prevalent system of education anti-industrial:—Our present educational system throughout the country is anti-industrial in spirit and influence. From the common school to the university this system is permeated and saturated with illustrations and ideas that are so many incentives to lead the student away from the industrial callings. Our common school readers, and common school teachers, are to-day so bending the twigs as to incline the tree of knowledge unfavorably to agriculture. I do not mean by this that our schools and colleges are avowedly hostile to industrial training. I only wish to emphasize the fact that they do not foster a taste for industrial work. I believe our present educational system is responsible, to a large extent, for the sentiment, almost universal among the laboring classes, that the purpose of an education is to lift one above the necessity of manual toil. The same sentiment is not uncommon in the higher ranks of society, and is pretty generally accepted by farmers. Is it not easy to see that the agricultural colleges can make but slow headway against an opposing tide of public sentiment?

5. The city exerts an opposing influence:—The attractions of city life oppose the growth of agricultural education by creating a demand for an education radically different from that afforded by the industrial college.

6. Influence of the newspapers unfavorable:—The newspapers are exerting—no doubt unintentionally—an influence away from the rural pursuits. They so portray the doings of the outside world as to make the quiet life of the country seem dull and uneventful. And, in so doing, they help to make unpopular an education that specially fits its possessor to live in the country.

7. The railroad an opposing factor:—There is an attraction for us all in a moving train of cars; and to no one is this attraction stronger than to the country youth to whom the passing train is the event of the day. Our farmer boys watch the flying train, and in fancy they follow it through forest and dale to the busy mart; they pursue it across the prairie and over the mountains, to the sea. The railroad excites a desire to see the outside world, and renders possible a trip to far off countries. 'Tis true the farmer boy's life is a little larger for the railroad, but it is also more restless. To whatever extent our farmers' sons have their love of excitement aroused by the rush and glitter of the railway train, to the same extent will the quiet life on the farm seem to them humdrum and tiresome, and a farmer's education the thing to be avoided.

8. Agricultural education misunderstood:—The last reason, that I shall name, why this new education is not more general, is popular misapprehension of the true character and purpose of the agricultural college. In the minds of some it is little more than a farm, and should therefore be self-supporting. Hence as these colleges are not self-supporting they are a failure. Need I reply to this that all education costs money, and that, as a rule, the better the education the more it will cost? Others have the mistaken notion that the chief work of the agricultural

college is to give manual training in the art, the practice of agriculture; to teach the boys how to plow and sow and reap. Men of this class will say: "Our boys know how to do farm work now; why send them to college to learn what they already know?" This reasoning is good enough, but it is based on a false assumption. These colleges do not aim to teach the "how," so much as the "why." If the student is made to clearly understand the objects to be secured by plowing, and the importance of thorough work; if he is made familiar with the mechanical principles involved in the construction and working of the plow, he will readily learn how to adjust and use the tool to accomplish the desired purpose. While the training of the hand is not lost sight of, the aim is rather to train the head, which is to guide the hand. Instead of sending out "crack" plowmen, "boss" teamsters, and "champion" wheat stackers, the agricultural college aims to so train its men as to fit them—except in the matter of experience—to take charge of the farm, either as manager or foreman, and wisely conduct its many operations. Another misapprehension is that these colleges are mere special schools of agriculture, designed to turn young men into farmers as uniformly as the miller turns his wheat into flour. The agricultural college is not a special school. Almost without exception these colleges have full four-year courses of study, the aim being to impart a broad, a liberal education, if you please, which shall at the same time, be a thoroughly practical one. Some of the graduates of these colleges, having special taste for, and brighter prospects in other pursuits, do not engage in farming. Is this to be greatly wondered at, and shall we annihilate the agricultural colleges because a good many of their graduates do not become farmers? I will answer one question by asking another. Shall we condemn the law and medical schools because not fifty per cent. of their graduates enter these professions? Shall we close the doors of our normal schools because a large majority of normal graduates do not follow teaching as a life work? Shall we suspend the commercial schools because every other one of their graduates fails to engage in commercial work? We only ask the same clemency for the agricultural college that is exercised toward the other institutions named, as the former will compare favorably with any of the others as to the percentage of its graduates in pursuits for which they were trained.

GRADUATES ON THE FARM.

These colleges of agriculture are sending twenty-five to seventy-five per cent. of their graduates into agriculture and allied industries. And this result is attained notwithstanding several unfavorable conditions, two only of which I will mention.

1. **Adverse Criticism**—The first is the unfavorable criticism that greets the ear of the graduate who returns to the farm. His neighbors will tell him that he will bury himself, throw away his education by settling on the farm, and that he ought to do something better. It takes a good deal of moral courage in a young man to stick to the farm under such circumstances, and, unless he has an innate love for agriculture that nothing can quench, he will be stongly-tempted to sell the farm and engage in other business.

2. **Want of Capital**—The second unfavorable condition applies to the poor, the moneyless, young graduate. He would like to engage in farming at once, but

he has no farm and no money to buy one. It would be mere folly for him to work on the farm as a common hand when he can earn money much more rapidly in other work. He therefore engages in teaching, joins a surveying party, or obtains a position in some commercial or manufacturing establishment. He expects to follow farming, however, when he accumulates sufficient capital. Should the agricultural college be criticised because this young man does not at once return to the farm? Again, suppose that after years of earnest effort, the young man accumulates the desired capital in his temporary calling. Meanwhile the lines of business have been drawn about him, his habits have become fixed, and he finds himself adjusted to his present surroundings. Should we censure the young man, or his alma mater, if, with an era of prosperity dawning before him, he forgets his "first love" and never returns to the farm? If the graduates of these agricultural colleges, after one year's trial could step into fairly remunerative positions as foremen or assistant farm managers the percentage of such graduates returning directly to the farm would be greatly increased. But there is not, at present, a demand among farmers for this kind of help, and therefore we must expect that many of these graduates, from sheer necessity, will temporarily engage in other pursuits.

II. NEEDS OF THE AGRICULTURAL COLLEGE.

I fear I have already dwelt too long on the obstacles to agricultural education, and therefore hasten to consider ways and means for meeting and overcoming these obstacles. If these colleges of agriculture are comparatively unknown, they must be brought to public notice. If their character and purpose are misunderstood, these misunderstandings must be cleared up. If these colleges have made mistakes, these mistakes must be corrected. If they have not been adequately supported, they must have support. If they have not been well attended, they must have more students. If there is a common belief that farmers do not need an education, and that college training makes a man too fine for the farm, this false and pernicious belief must be uprooted. Here is a world of work to be done; but I think all will agree with me that it is nearly all preliminary to, and hence no part of the legitimate work of the agricultural college. More than this, from the very nature of the difficulties to be overcome, the college is powerless to meet them. This preliminary work must be done, but how shall it be done? In other words, in view of the many hindrances to agricultural education, what are, to-day, the pressing needs of the agricultural college?

I. CO-OPERATION OF AGRICULTURAL SOCIETIES.

The first great need is the active, united, unwavering support and co-operation of the various State and National agricultural associations. At the present time these societies are generally friendly in their attitude toward the agricultural colleges; but I surmise they might be more actively helpful in pushing this new education to the front. With the backing of the various agricultural societies of the country, these colleges are bound to succeed. Without this backing they are as certainly bound to fail. I believe that the most of these societies already feel the

responsibility resting upon them, and are desirous to assist the agricultural colleges in their arduous work. I will therefore suggest several ways in which these associations can be greatly helpful.

HOW TO AID THESE COLLEGES.

Of the many ways of co-operating with these colleges the following are here suggested:

First: These associations can render assistance in becoming thoroughly acquainted with the work of these colleges, and in making practical suggestions for increasing their efficiency. In some States, committees of the State agricultural and horticultural societies and the State Grange, meet annually in joint session with the trustees of the agricultural college, to consider the work and needs of the institution, and to devise plans for organized, co-operative effort in promoting the great agricultural interests of the State. Would it not be well for the various farmers' organizations to follow the above example in all the States where there is a farmers' college?

Second: The various agricultural societies, of whatever name, can do a great work, through their organization and by individual effort, in moulding public sentiment in favor of agricultural education. Will the agricultural societies of Indiana take hold of this work with a will, and help to dispel the false notion now so prevalent?

Third: These societies can be useful in bringing the colleges before the farmer. I know of no better way of accomplishing this, than by holding farmers' institutes at which the professors of the agricultural colleges may address the farmers on familiar, practical and scientific topics relating to agriculture. Indeed, I suggest nothing new in this, as these institutes have been organized and maintained in several States with most gratifying results. And I firmly believe that live farmers' institutes will do more towards filling the halls of our agricultural colleges with the right kind of students—those of the industrial classes—than any other means that may be adopted. But these colleges, with the limited funds at their command, can not incur the expense of sending their professors over the country to do this missionary work. Can not the State Board of Agriculture take the initiative in securing State aid to defray the expense of an annual series of four to six thoroughly organized, well equipped, and successfully carried out farmers' institutes?

Fourth: The various county, district, and State farmers' organizations can be very helpful in securing students for the agricultural college. They can do this in two ways, viz.: by individual work on the part of the members, and by organized effort. Who does not know a young man that expects to enter college soon? Is it a hard thing to say to such an one: "We have an agricultural college in our State that affords a plain practical education at a very reasonable cost to its students; here is a catalogue?" Just a word like the above will often secure a student. Now, as to organized effort in this direction. Let every county agricultural society offer, yearly, a premium to the young man who will produce the greatest yield of a certain crop on a specified area of ground. Let this premium be a scholarship at the agricultural college, to be awarded only when the successful competitor act-

nally enters the college. Could not these county societies profitably expend, in the way indicated, as much in aiding needy, energetic, aspiring farmers' boys, as upon fast horses? Should they not do as much as this in promoting agricultural education? The last-mentioned suggestion is not original with me; but I do not think the measure has yet been tried in any of the States. Why should not Indiana take the lead in some move of this kind?

II. FINANCIAL AID.

With the active co-operation of the agricultural societies, in the ways already suggested, these colleges would not only become far more widely useful, but they would have no difficulty in securing that which is their second great need—funds. The agricultural and mechanical colleges are nearly all quite young, and still in the expensive stage of rapid growth. With a very few fortunate exceptions, they are still but meagerly equipped. If the younger and less favored of these institutions are to keep abreast of the times they must expend large sums in erecting buildings, fitting up laboratories; purchasing libraries, machinery, museum collections, apparatus, appliances and live stock; and, last but not least, in making additions to their teaching force. In view of all these pressing needs, can the cheap agricultural college be anything but a very poor one? In making provisions for these institutions, should the question be, "On what sum can they manage to exist?" or should it be "What do these colleges need to make them, in the highest degree successful in educating their students for the industrial pursuits?" Will the industrial, and especially the agricultural, classes rest content with anything but first-class colleges devoted to their interests? As before intimated, a few agricultural colleges are already handsomely equipped. In addition to fine laboratories, museums, shops, etc., their farms are well supplied with commodious and conveniently arranged buildings, the best farm implements, improved breeds of the different classes of the domestic animals, and first-class facilities for conducting accurate field and feeding experiments. Do these more fortunate institutions have a better equipment than they need to enable them to impart a thorough, practical, industrial education? Should not all the agricultural colleges of the country be as thoroughly equipped for their special work? Is there any valid reason why the Indiana Agricultural College should not have educational facilities at least equal to the best? Will the farmers of this prosperous commonwealth rest satisfied to let the "Hoosier State" take second rank in promoting agricultural education? As these colleges exist largely in the interest of agriculture, the responsibility of securing funds for their maintenance rests, in a large measure, upon the farmers, who can obtain what they will for the asking. Gentlemen of the State Board of Agriculture and fellow-farmers of Indiana, will you ask largely for your agricultural college that she may go on enlarging her sphere of usefulness until she becomes the peer of any institution of her class in this country? Thanking you for the courtesy you have shown me, I most respectfully submit this paper with its questions, facts and suggestions, for your thoughtful consideration.

A GRAIN OF CORN.*

BY PROF. C. R. BARNES, OF PURDUE UNIVERSITY.

A grain of corn—a common enough thing, you say—quite simple, too; surely there's little to be told about that—yet I hope to be able to show you this evening that there are some of the most abstruse problems of physiology very intimately connected with this little grain, the answers to some of which are yet to be found. My object in this brief address is three-fold. First, to present to you an illustration of the scientific or inductive method of approaching questions touching the phenomena of nature. Second, to illustrate what I consider the true method of teaching, viz.: by the experiments and induction of the pupil himself, guided by the teacher, but *taught* by nature. Third, to present incidentally some facts about a very common object, which I permit myself to hope will awaken your greater interest in the study of living things. Whether I attain any part of this object I leave you to judge.

First, then, let us study the structure of the grain of corn, that we may better comprehend the meaning of the questions we shall ask it. Are you acquainted, think you, with all the contrivances which appear on careful examination of what you have all handled so many times? But before we undertake a study of the grain, let me correct a common misunderstanding as to the nature of a grain of corn. You have no doubt spoken of it and heard it spoken of as a seed. While correct enough, perhaps, for practical purposes, this is not strictly true. Most plants bear their seed stored away in a closed pod, which is distinct from the seed. Think of the hazel-nut, for example. Here the kernel lies within a shell, quite distinct from the meat. Conceive now that this shell is very thin and adheres closely to the seed within, and you will have a tolerable idea of the nature of the external covering of the corn grain, which you will easily see, corresponds with the pod in which the true seed is enclosed. This covering may be stripped off after soaking the corn for a few minutes, and will be seen to be a thin, transparent husk of considerable toughness. Take one of these soaked grains and carefully strip off the outer husk. Underneath it we shall find a spongy and much more delicate membrane, the true coat of the seed. Our corn grain is thus seen to be considerably modified as to its protective coverings. The seed is closely hugged by the walls of the pod, and as a consequence it has lost one of the usual two coats. Now with a sharp knife cut the grain vertically and at right angles to its flattened faces. If the grain be one from the base of the ear, an appearance somewhat like the diagram will be seen. Nearly two-thirds of the portion within the coats is starch, the outer part yellowish and translucent, a central part pure white opaque powdery starch. A very thin slice of this starchy part of the grain shows, when examined

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

by the microscope, that the starch grains do not simply fill the seed coat as saw-dust fills a pin cushion, but that they are separately packed in little sacs, so crowded together that they are pressed out of their original roundish shape, and are angular and twelve-sided. Off at one side of this starchy mass one can see the embryo or young plantlet, without which this food material and these protective coverings would be useless. This young plant consists of a miniature stem with a cluster of little leaves at the top, and a small root, the whole being enwrapped by a large, thick leaf. (*See diagrams.*) So much for the bare structure of the seed. But the soul of plant study lies not so much in the mere observation of structure as in the investigation of the plant at work—how it lives, moves, grows and stores away reserve food. One would as well study a loom or a printing press while it stands a quiet and idle thing, as to study plants with no reference to their varied and wonderful movements and the complicated results which arise from this activity. I am astonished—*astonished*—that many of those to whom are committed the guidance of students of living things, make this study a burden and a bore, because they make the bare bones of science stand for the symmetrical body. Why should we not clothe the skeleton of bare principles with the flesh and blood of life? No one, unless he be a competent machinist, can interest himself in the study of a loom at rest. But any one can take a deep interest in watching the skillful play of the delicate parts; the marvelous co-ordination of all the motions and the almost incredible result in the woven fabric. When such a course is followed in science teaching, then it will come to pass that studies in biology will take their true place in the curricula of our colleges and schools.

Let us question our grain of corn. *Is it alive?* One of the great characteristics of living things is their constant change, whereas lifeless matter is correspondingly unchangeable. We know that the grain of corn undergoes little or no change after it reaches maturity, except the unimportant loss of water, because of which it grows harder and lighter. Shall we, therefore, relegate it to the group of lifeless things? Wait a moment. If I subject this seemingly dead grain to certain conditions of temperature and moisture, I shall find that it undergoes a vast and wonderful change. A root appears; then a stem enwrapped by a tiny leaf, and a growth, a production of new life, takes place. The seed germinates. Let us inquire what kind of life this is which, under some circumstances, remains dormant, and, under others, exhibits the most remarkable activity. I hold a match in my hand. Is there fire in the match? Under the circumstances in which it is now placed there is none. But let me draw it over a rough surface, and the paste on the end flames violently. So life resides in the seed in what may be called a potential condition, ready at any moment to burst forth when the proper conditions are supplied. All seeds, and the minute bodies which represent seeds in the lower orders of plants, possess this dormant life, which is never manifested in growth except under suitable conditions. Our first question then may be answered affirmatively: The seed is alive, but with a potential life; one in which there are great possibilities, but not always realizations.

Let us again inquire of the length of time which the seed life may remain dormant. It is well known that the per centage of corn grains which will germinate after a few years is very small. The length of life, however, is dependent largely

on the conditions under which the seed is kept. A dark, dry, cool place is practically the best for keeping seed. If the air can be excluded, so much the better. Seeds deeply buried retain their vitality a long time. With different seed the length of life varies greatly, some water-lily seed known to be two hundred years old having been germinated. Doubtless the stories of the "mummy wheat" you have heard will occur to you in this connection. The claim for this wheat is that it originated from grains taken from the hands of Egyptian mummies three thousand years old. The mummy wheat, it must be remembered, comes from the land of the most expert jugglers and sleight-of-hand men in the world, and when seeds of exclusively New World plants are found with the three thousand year old wheat, it is calculated to increase our doubt as to the genuineness of the specimens. At all events, the evidence is not sufficient to make us believe that so old seeds can be alive.

What are the conditions under which the potential life of the seed will become active? Evidently some of these conditions must depend on the seed itself, and some on its surroundings. You will think at once, when I speak of conditions dependent on the seed itself, of two, viz.: that the seed must be mature and that it must be sound. I shall not dwell at all on the necessity of maturity to germination. If any of you tried the rash experiment of planting "Kansas" corn extensively last season, you will probably refrain from using the resulting crop for seed. What do we mean by *soundness*? What part of the seed must be intact in order that it may grow? Evidently the young plantlet. But is the food store around it essential? Let us cut and scrape away all the starch from about the embryo, being careful not to injure this. The little plant tries its best to grow, but starves to death before it can get food from the ground to support itself. Evidently some ready-made food is necessary. Will anything but corn starch do? Let us make a paste of a little rice starch and replace the natural starch of the corn grain by this. Placed in the same conditions as before the plantlet grows and apparently does not know the difference.

But, now, what external circumstances are necessary to germination? Any one knows that if a good grain be planted in the soil, watered and kept warm, we shall get a corn plant. I ask then what are the essential steps in this process? Is the soil necessary? The darkness? The moisture? Is this all? To determine these points we must perform some more experiments. Let us take several pots filled with good rich soil and plant half a dozen apparently sound seeds in each. These we will water carefully, but keep at a temperature a little above freezing. No plants come up. Repeat the experiment, keeping the second pots at a higher temperature, say 60°, and we shall find in a few days the young plants peering above the surface. Let us try some other pots, prepared and treated like the last, except that no moisture is supplied. Again we fail to grow any plants. Let us see whether the *soil* has any influence. To do this we shall procure some clean sand, heat it red hot and wash it in acid to remove every trace of soluble nourishing matter. In sand so cleansed the seeds grow as well as in soil. One more experiment. Plant the seed as before and treat as well as you know how, but in some way take out and keep out all air from contact with the seeds. Again you fail to get any plants.

From this series of experiments, therefore, we may conclude that there are three, and only three necessary conditions to the germination of corn, viz.: a *certain temperature*, the *presence of moisture* and the *access of air*.

We have seen that the young plantlet, while in the seed, is surrounded on three sides with a mass of cells containing starch, and it is this starch which enables the plant to grow even in pure sand from which it can get no nourishment. It must be, therefore, that the starch furnishes the material for this growth. But how? In order that it may be used it must be dissolved. But starch is insoluble, both in cold and hot water. How shall this difficulty be met? There is only one way in which this can be done, that is by the conversion of starch into some other substance capable of solution in cold water. Is there any substance nearly like starch chemically, soluble in water and into which it can be readily converted? Yes; sugar. If in any way the elements of water can be added to starch, it will become sugar. Does this change occur when seeds sprout? If so, germinating seeds ought to taste sweet—do they? I go to the malting floor of a brewery and taste the sprouting barley—certainly it is sweet. We discover thus that when seeds germinate their starch is changed into sugar, in order that this may be dissolved and nourish the young plant. Just what force or influence is exerted upon the starch to cause it to combine with water we know not. In order that man should accomplish the same end, he needs all the appliances of a glucose factory—the furnaces, the steam, the acids, the marble dust and the skilled attendants. But here in the minute laboratory of a grain of corn a process is accomplished, to rival which the chemical knowledge and mechanical skill of nineteen centuries is requisite.

But more is necessary before the growing plant can utilize the store of food provided for it. There must be some organ to remain in contact with the starch, that as it is changed into sugar it may be absorbed into the tissues of the young corn plant. The large leaf of the embryo which enwraps the stem and root does this. You are aware that when a grain of corn “sprouts,” as we say, the young plant seems to come from the side of the grain, and that it adheres to the grain until the latter is completely emptied. The reason of this is that the absorbing organ is still within the coats of the grain, and serves no other purpose than to take up the dissolved nutriment until the young plant is capable of feeding for itself from the outside. We learn then of a new fact in plant life, viz.: *absorption*. Let us inquire *how* the plant absorbs. It may seem an easy question to answer. If I dip the end of a cotton string into a solution of sugar, it will absorb the liquid and soon become thoroughly wet. It *might* be, then, that the plant absorbs the dissolved sugar in the same way as the cotton string. But there is a stubborn fact in the way of this easy explanation. The whole plant is made up of a mass of small cells, each of which is a completely closed cavity bounded by a wall in which there are no visible openings. We must find a way in which liquids can pass through membranes without openings. Let us see whether physics can help us. If we take an animal membrane—say a bladder—and, filling it with a thick solution of gum-arabic, suspend it in a vessel of water, we shall find that the bladder soon becomes distended by water passing into it, though there are no visible pores. If we examine the water outside, we shall find only a trace of gum-arabic in it, which has escaped from the bladder. Practically an infinite amount of water passes in, and an infinitesimal

amount of the gum passes out. Our experiment has closely imitated the conditions of things found in the plant.

A watery solution of the food materials is on the outside of the vast number of little bladders, which compose the plant. Each of these little bladders or cells is filled, not with gum-arabic, but with a substance, the living matter of the plant, protoplasm, which behaves toward this food solution like the gum-arabic of our experiment. Each of the little bladders on surface of this large leaf becomes distended with the sugar solution. These yield it up to their neighbors which have none; these in turn to *their* needy neighbors; and so on until every cell of the young plantlet is provided with food necessary for its growth. The food materials then do not *soak* into the plant, but are drawn in by a physical force to which we have given a name, but of whose nature we are as ignorant as we are of the attraction of gravitation.

It is not only necessary that there be food absorbed by the plantlet, but it must be distributed to those parts needing it, and in such quantity as each needs. How is this adjustment accomplished? You have probably stood in a mill and watched the grain as it gradually sinks through the hopper. Why does it flow through the opening? Simply because it is used up at that point. Dip the corner of a bit of blotting paper into one side of a drop of ink. The ink flows toward the blotter. Why? Because it is being removed at that point. So in the plant. If we could watch the food currents in the little plant, we see should a strong current setting toward the points of greatest growth. At these points the sugar is being used up—converted into other substances—and as long as the supply continues, the food-laden currents will travel in lines of least resistance and reach the cells in need of food.

We have now seen what and where food is provided for the growing plantlet, how it is made available and how sent to the needy parts. It remains to inquire how it is possible for the plant to manufacture such a complicated substance as the living matter, protoplasm, out of the comparatively simple food stuffs, sugar, water, oxygen of the air and some minerals like potash and iron, furnished it. And, first, it must be said that a plant can not work without some supply of energy any more than can a steam engine. We burn coal under our boilers producing heat by means of which the engine is able to do work. In other words, the furnace, boiler, steam pipes and engine are only the apparatus which we use to convert the heat into mechanical work. Now the plant has work to do. It must tear down the simple substances prepared for it and build them up into highly complicated material, protoplasm. Its work may be compared to that of a mason, who tears down a plain wall, and with some of the same bricks builds a more elaborate one. For this work the plant needs something comparable to the strength of the mason. Where does it get it?

Return to the illustration of the steam engine. Coals when burnt yield a kind of energy called heat. Sugar when burnt will make heat. Burning substances is combining oxygen with them. So the sugar of the plant's food is oxidized or burnt, though very gradually indeed, and this burning yields the energy which the plant uses in manufacturing its living material. Thus, part of the food serves as fuel to enable the plant to use the rest.

By our steam engine not all the heat liberated in the furnace is converted into

mechanical work. A part is lost. So with the seed; some of the energy obtained by the burning of the food is lost from the plant in the form of heat. Germinating seeds then should be warm. Are they? If we go again to the malting floor of the brewery and plunge a thermometer into the mass of sprouting barley we shall find it to stand several degrees higher than one in the air.

Suppose we stop out all the air from the furnace of an engine, what will be the result? The fire will go out. Suppose we attempt to light a fire in a furnace to which there is no air admitted. Can the fire be built? Of course not. Apply this to the seed. We have already found that unless air be admitted to the seed it will not germinate. Why? Because the oxygen of the air is necessary to the burning of part of the food to set free energy. Suppose we cut off the supply of air from a plant. It will die of starvation as surely as though the supply of other food were cut off.

Do young plants breathe? When animals breathe they give off a gas called carbonic acid. If we collect the gas given off by a mass of germinating seeds, we shall find that it is the very same. Indeed, we can make no distinction between the breathing of an animal and a plant at this stage.

In this brief consideration of the corn grain at work we have examined the process of germination and found it dependent on certain conditions of the seed itself and certain surroundings; that the starch of the grain is converted into sugar and absorbed by the plant under the laws of dialysis; that this food supply is directed to the parts which are growing most rapidly; that the seed breathes, using oxygen and giving off carbonic acid; that it assimilates these substances, manufacturing water, sugar and oxygen into one of the most complex substances known to chemists; and that this process of assimilation is dependent on the evolution of energy by the combination of oxygen with some of the sugar, part of the energy being liberated in the form of heat.

Why, it is absolutely marvelous to contemplate! Here, pent up in this little embryo, and confined within the minute cells of the increasing plant, is a substance whose qualities are the most remarkable of anything in the material universe—a substance which, in its living, brings to bear on matter all the forces of nature; a whole chemical and physical laboratory in a nutshell, literally and figuratively! Man's power upon the physical universe sinks into insignificance before the sublime simplicity of even a grain of corn. Man's roaring furnaces and hissing steam, his whizzing stones and clashing machinery, his mordant acids and huge converters, serve to do in a noisy, blustering, important way what goes on in every cornfield on our broad prairies, without the bending of a stalk or the rustling of a blade.

If the man who is constantly dealing with these mighty but silent forces, the farmer, brings to their study an intelligent knowledge of the principles involved, it can not but lift farming out of the rut in which it is too apt to run and put it upon that broad and sure road of interest and appreciation upon which it should rightly move.

Agriculture is the most empirical of the arts. While science does not desire, does not ask, that the facts so gained shall be discarded, she does claim a place in the thoughts of the tiller of the soil that she may give empirical knowledge the sure basis of reason, and thus cause the earth to bring forth more abundantly.

THE INDUSTRIAL PROGRESS OF WOMAN*

BY FLORENCE M. ADKINSON.

The industrial worth of woman, her worth as a worker, a producer, a contributor to national wealth, is very generally underestimated. Woman was the first farmer, mechanic and manufacturer. The traditions of the oldest nations ascribe the origin of these pursuits chiefly to feminine deities and to feminine rulers. Ceres, the goddess of corn and harvest, instructed the sons of men in agriculture and horticulture. The Greeks regarded Minerva as the originator of agriculture and mechanics, the inventor, not only of the distaff and the needle, but of all tools of handicraft and of musical instruments, and the first to build ships. The most ancient Chinese writers accord the invention of spinning to Yao, wife of the fourth emperor, and attribute the discovery of silk and the process of its manufacture to Si-ling-chi, an empress 4,000 years before Christ.

In the primitive conditions of human existence, among the dwellers in caves and wigwams, it is the woman who tills the scanty crop, gathers the wild nuts and berries, invents and manufactures cloth and clothing, and devises and makes the rude mechanical conveniences of her home, while the man in his superiority looks upon her and her occupations with contempt, and hunts, and loafs, and fights. The first step of the savage man toward civilization is to take up the out-door employments of the savage woman. As the race advances from the cave and the wigwam toward the cabin, the cottage and the palace, he extends, improves and absorbs these employments, while she increases and elaborates the in-door work. For centuries women tended the spindle and the distaff, the wheel and the loom. In pioneer days, the manufacture of textile fabrics was chiefly in the hands of women, as were the raising of garden vegetables and the care of dairy products, in the aggregate no small contribution to the wealth of the country.

Time will not permit a tracing of woman's industrial progress through all the ages, or an inquiry into the causes and influences which determined the industrial position occupied by woman in this country some thirty years ago. At that time the number of gainful occupations open to her could almost be counted upon her fingers. The woman who earned her living then traveled a much harder road

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than do the working women of to-day. Her opportunities were limited, her wages scanty. She lost social caste by doing paid labor. She was an object of commiseration, not unfrequently of suspicion, for no other reason than that she worked for pay. If she entered into competition with man, her labor, though equal in quantity and quality, commanded only about one-third of his rate of remuneration. Public sentiment made no protest against this injustice, in fact did not regard it as an injustice. It was generally held as a matter of course that a woman ought to work for less than a man simply because of her sex. If, confident of her own ability, she ventured to earn her own living by honorable labor outside of the kitchen, the nursery, the sewing shop or the school room, she was accused of a consuming desire to unsex herself, and was shunned by women and ridiculed by men. It is noticable that in the struggle of women for wider industrial opportunities that the danger of becoming unsexed depended more upon what they were paid than upon what they did. No toil, however hard, injurious or dirty, was ever held as degrading to woman so long as it was performed gratuitously for the benefit of her family. A woman could split stove wood and clean spittoons three hundred and sixty-five days in a year at home without endangering her sex, but if she did like work as a janitor in a public building, or even if she kept books in a wholesale house, or operated a telegraph line, or practiced medicine, she became a rebel against God and nature, an unsexed creature.

But those days are past. A revolution has been brought about in woman's industrial position and opportunity. The woman who engages in paid labor is respected to-day, and, what is more, respects herself. She no longer conceals the fact, feeling ashamed, but is proud of her work and glories in her skill. She has won her way into almost every department of labor. In the battle for fair remuneration she has gained largely. In some occupations, she stands on an equality with man; in a few, the chances are in her favor. She chooses her opportunity according to her inclination. She goes where she will; her sphere is limited only by her ability. It is as broad as she can make it. She no longer bewails her occupation as a misfortune, but, sturdy and self-reliant, looks out upon the world with unfaltering eyes, knowing that all its possibilities belong to those who take them. In doing this, woman has but claimed her share of the "dominion" which it is said was given "unto them" in the Garden of Eden; has but occupied anew her original domain of agriculture, manufacture, mechanics and commerce.

When we look upon the great standing armies in Europe, and then upon the host of women drudging in the streets and fields, producing the subsistence for idle soldiers and rearing sons for future armies; when we look upon the vast horde of tramps in America going up and down the land seeking what they may devour, and then upon the deserted women and children toiling in the shops and mills, the question arises that, while the women are claiming their original industrial domain, are not the men, some of them at least, returning to their original condition of hunting, loafing and fighting? But this, we trust, is only one of the temporary retrogressions that accompany all phases of evolution. Faith in the infinite progress of humanity inspires the belief that eventually man and woman will advance side by side, hand in hand, toward higher development and more harmonious existence.

The census of 1880 tells a wonderful story of woman's industrial progress in the United States. In that year, the number of girls and women above ten years ago, engaged in gainful occupations was 2,647,157, an increase in ten years of over 800,000, a rate of increase considerably larger than the rate of increase in population. Impelled by necessity, or by failure on the part of the so-called "natural protectors," or by the growing demands of living and luxury, or by a desire to use strength and ability more widely, women have entered 219 of the 265 occupations enumerated in the census for 1880. This, however, but partly tells the story. During the past three years women have entered more largely into business, manufactures and industries, than during any previous period, and it is known that women are now engaged in several occupations in which none were reported by the census takers.

In everything relating directly or remotely to the industries is found the impress of woman's hand. She is identified with the monetary interests of the country as capitalist, banker, broker of money and stocks. The census reports no women as bank officials, but there are three or four women who are presidents of banks, and as many more who are cashiers. Woman is an important factor in commerce as importer, as dealer and trader in books, papers and stationery, in boots and shoes, in cotton and wool, in coal, wood and ice, in cigars, tobacco and liquors, in dry goods, fancy goods, millinery, hats, caps, furs, clothing and men's furnishing goods, in china and glassware, silverware and jewelry, in music and musical instruments, in drugs, medicines, oils and paints, in paper and paper stock, in sewing machines, in groceries, produce and provisions, in marble, stone and lumber, in iron and tinware, in leather and hides, in agricultural implements, live stock and real estate. The census numbers in these and other branches of trade 14,465 women as dealers, and over 35,000 as commercial travelers, book-keepers, clerks, saleswomen and employes. Women, too, are connected with almost every form of transportation, with express and railway companies, steamboats, telegraph and telephone companies.

In the manufacturing, mechanical and mining industries, woman is a valuable element. Of the 136 occupations enumerated under this head women are represented as engaged in 103, numbering altogether over 600,000 workers. Eleven women are reported as builders and contractors, nineteen as officials of manufacturing and mining companies, and 407 as manufacturers on their own account. In the manufacture of textile fabrics, including the making of material and the fashioning of garments, woman produces sixty-five per cent., man thirty-five. She takes the wool, cotton and silk as it came from the fleece, the field or the cocoon, and transforms it into the woven fabrics that line the shelves of our merchant princes, and again with her scissors, sewing-machine and "swift, shining needle" changes these fabrics into beautiful garments. As an operative she works in wood, iron and brass, in steel, gold and silver, in ivory, bone and tin, in leather, rubber and straw. She is found in the carriage and cabinet shops, in the paper mills and book binderies, in the shoe and harness factories, in the box factories, in the barber shop, and in the chemist's laboratory. She sets type and carries newspapers. She hangs wall paper, paints and varnishes. In the preparation of food for the market, as miller, baker, confectioner, and laborer in fruit canning and meat packing establishments, she bears no small share.

In agricultural pursuits including farming, gardening, flower and fruit raising, bee keeping, dairy work, stock raising and common labor, 594,510 women are reported engaged. Nearly 57,000 are reported as farmers and planters, in other words, as landed proprietors. According to the statistics gathered in 1881 there are 3,116 women farmers in this State, 399 manufacturers and 489 general merchants. This is by no means a fair estimate, as 405 of the 1,011 Township Trustees in Indiana demonstrated their ignorance or inefficiency by failing to make the proper inquiries regarding the vocations of women. They were not educated up to the point of knowing that woman's work is worth something.

Women are achieving marked success, exhibiting an ability to manage large enterprises and to make them profitable. Mrs. Iliff, the Colorado cattle queen, the successful manager of an estate valued at \$5,000,000; the daughters of Cassius M. Clay, whose farms of three or four hundred acres yield abundantly under their management; Mrs. Elizabeth B. Chace, of Rhode Island, president of the Valley Falls Company, employing five hundred operatives in her mills and factories, and Miss Keely, of Williamsport, Pa., proprietor of the largest boiler works between Philadelphia and Pittsburg, are illustrations of the women who are producers, manufacturers and contributors to the wealth of the country. In the cities women are engaged more and more in new branches of business and industry, not only as wage workers but as proprietors and employers. They are taking up homesteads, pre-emption and tree claims in the great Northwest, building hotels and warehouses in the Western towns and projecting improvements. So numerous, varied and valuable are the interests of women becoming in agriculture, commerce and manufacture, that it will doubtless soon be deemed appropriate that women should be among the members of City Boards of Trade and State Boards of Agriculture.

In all the struggle for industrial opportunity and success woman has found man her bitterest foe, her warmest friend, her worst oppressor, her most generous helper. Men have placed every possible obstacle in woman's path. They have taken advantage of her necessities to keep her wages at one-half or one-third that paid to men for the same work. They have laid down their tools and marched from the shops a hundred strong because a woman had been given employment there. A few days ago the great United States government refused Mrs. Miller, of New Orleans, a pilot's license simply because of her sex, though she proved herself competent, and asked that she might take the place of her disabled husband. Men have persecuted working women beyond endurance, made them the objects of insult and of infamous pursuit. In brief, woman has encountered opposition from men in every form that is mean and dishonorable, cowardly and contemptible.

On the other hand men of magnanimous spirit have extended to her every possible help and encouragement. No age or nation has produced a more noble and chivalrous manhood than the best type of American manhood. Men have championed woman's cause in legislatures, courts and trade-unions, labored to protect her rights, to extend her opportunities and to secure to her fair remuneration. They have blundered often, and have been slow to comprehend her nature and her needs, but their intentions and hearts were in the right. Gradually they are realizing the worth of womanly counsel and womanly help in public enterprises. They are beginning to reward woman's public service with something more sub-

stantial than votes of thanks and flowery eulogies. They are beginning to recognize the commercial value of woman's industry and giving it place in official records. Her opportunities, wages and disadvantages are becoming subjects of official inquiry and consideration. The work of her hands and skill is given a place of honor in public exhibits. At the Centennial Exposition, women's work was for the first time in this country made a distinctive feature of the exhibition. In 1878 the Indiana State Board of Agriculture distinguished themselves as the first to establish a woman's department, under the charge of women, at the State Fair. Last year the New England Manufacturers' and Mechanics' Institute followed their example and appropriated an acre of space to woman's work, under the direction of women. And now conservative New Orleans comes to the front with the proposal to make woman's industries a leading feature of her great Exposition this year and soliciting the co-operation of two representative women from every State.

There is one phase in woman's industry, however, unrecognized, unhonored and unsung, for which I would plead. According to the census there were in 1880, between the ages of sixteen and fifty-nine, the most active period of human life, 13,907,444 men, of whom 921,333 were reported without occupation, and between the same ages nearly as many women, 13,377,002, of whom 11,093,887 were represented without occupation. It is explained that the number of men without occupation comprises students, invalids, idiots, the insane, paupers and criminals, and that the body of unoccupied women is made up of these same classes, "and of the far greater classes of women—wives, mothers, or grown daughters, keeping house for their families or living at home without any special avocation." Making due allowance for imbeciles, invalids, paupers and criminals, there are in round numbers, if the census is to be believed, 10,000,000 able bodied women without occupation. The woman who does housework away from home and is paid for it, has an occupation, and is classed as a worker, a housekeeper or domestic servant. If she does the same kind of work and much more of it for her family, she has no occupation, and is classed in the official record as a drone, a non-producer. That is specimen of masculine logic. Why is not the same work as valuable within the family as outside?

The housekeeper at home is the unpaid laborer of the world; the worker who never goes on a strike, and to whom the ten-hour law is a "barren ideality." She is a supported woman. Supported, though she work sixteen hours of the twenty-four. The man provides a barrel of flour and fuel to cook it, the woman bakes it into bread worth in the market four or five times the cost of flour and fuel; he furnishes a dollar's worth of calico, she makes it into garments that will readily sell for two dollars—therefore she is supported. Suppose the work of the busy wife of the farmer or mechanic had to be hired, suppose all the numerous garments, the countless loaves of bread and cakes and pies and other cooking, all the tending of children and of the sick, all the manifold duties and labors of the house which she performs had to be paid for, what would it amount to in dollars and cents at the end of the year? And when the year is multiplied by forty, what think you is the value of the home housekeeper? When at the end of forty years of toil and economy she finds herself without a dollar she can call her own, except the one-third interest

which the law holds for her in case her husband dies before she does, is it any wonder that she feels that being supported is rather a hard fate?

Is not the home housekeeper, the wife and mother who faithfully performs her part worthy of a better fate than that of a beggar? Yes, a beggar, for a man if compelled to ask his wife for every ten cents he needed to use, he would feel in the position of a beggar.

The fact that home work does not bring in immediate money returns does not detract from its actual value. It represents time, strength and skill, it calls for responsibility energy and executive ability. When a man and woman accumulate property together and maintain a home, he doing the out door work and she indoor work, she contributes just as much toward their joint accumulations as he does and is entitled to the position of equal partner, half of the profits and an equal inheritance. There has been some progress in this respect. Under the old common law, the wife, all that she possessed, and all she could do belonged to the husband, and the widow could only hold a life estate in the lands of the deceased husband. To-day the widow's third is hers in fee simple, free from all claims, and in Indiana, if the joint accumulations are held by joint title, as in right and justice they should be, the widow inherits the property on the same terms as does the widower, it is hers to hold, manage or sell, without any of the expensive processes of law and administration. But there are very few homes thus held jointly.

When her sex is no longer a disadvantage to woman in seeking opportunities, in commanding remuneration, and in protecting and advancing her industrial and property interests, when her labor everywhere receives a just valuation, when she is recognized as an equal partner in marriage and home and her motherhood duly honored, then shall we see woman "full-summed in all her powers," exalting her labor and by her labor exalted, then shall she be given the full fruit of her hands, then shall "her works praise her at the gates" according to her merits, then shall we greet the dawn of the golden age.

THE IMPORTANCE OF MECHANICAL APPLIANCES TO SUCCESSFUL FARMING.*

BY CHARLES E. MERRIFIELD, OF MARION COUNTY.

A study of the value of mechanical appliances as adapted to successful farming is one well worthy of every agriculturist. To decide just where economy ends and extravagance begins in the purchase and use of farming implements is no easy matter. There is, however, one general rule applicable to this subject, which though often violated by Western farmers, ought always to be considered in the purchase of a machine, viz.: can you properly house and care for it when not in use? It is very safe to conclude that it is not best to buy a machine of any kind unless you can keep it unexposed to the weather when idle. A reckless inobservance of this rule has been the occasion of great loss to the farming community, especially in the Western States.

There is little doubt that the amount wasted by the farmers of Indiana by a careless habit of neglecting their machinery would be equal to 10 per cent. per annum of the whole amount invested, and as the whole amount invested in agricultural implements in Indiana is about \$25,000,000, the amount wasted would be equal to almost double the sum required to keep up the public schools of the State.

In the year 1880 the value of farming implements in Indiana was \$24,535,053, having nearly quadrupled in value in thirty years, or since the year 1850.

The population of the State has about doubled in the same period, but the wheat product of 1880 was six and one-third times as great as it was in 1850.

The use of improved machinery has a most beneficent effect on the *minds* of the farming community, and is one of the most certain signs of an advanced civilization. Where machinery is largely in use *there* will be found the most highly educated of the agricultural classes. Where the best plows and harrows are habitually used, the women will not be found working in the field with a hoe, nor will they be gleaning, after the manner of Ruth, in a field where the self-binder reaper is at work.

It has been claimed that a republican form of government can not exist without general mental culture. This being the case, how necessary it would seem in our great republic to foster with zealous care every thing that will tend to mental improvement. The products of the soil are God's gifts to humanity, and there can be no material or permanent prosperity excepting the land be blessed with an abundant yield.

A sudden and entire suspension of the use of all improved farming machinery would have a most appalling effect. A necessary exodus from the cities would fol-

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

low, or the effect would be equal to a famine in the land. The effect on business interests would be equal to the most devastating war. The immense sums of money lost to inventors and manufacturers in their efforts to produce improved machinery will never be known. The Bureau of Statistics will never reach those facts, for every man wishes to bury his failure in oblivion.

It is safe to say that where one invention proves to be a genuine success, one hundred are failures, and as it is the business mind rather than the inventive, that commands *business success*, it rarely occurs that the inventor is greatly benefited by his inventions. A comparison of some of the old appliances with recent improvements may be of some interest. Thus, the plow, which is one of the most ancient as well as one of the most useful of implements, has evolved during long and tedious centuries, from the forked trunk of a small tree, as used by the ancient Greeks and Egyptians, until it has assumed the symmetrical form of the sulky breaking plow of the present age. Although plows with iron shares were used several centuries before the Christian era, the Romans alone had so improved them as to use the mould board and the coulter, sometimes adding a wheel to the beam to keep it from running too deep. The English took the lead for many years in the improvement of plows, and added wheels to hold it upright, and used cast-iron shares for which a patent was granted in 1785 to a Scotchman named Ransomes.

The first American patent on a mould board alone was granted to Robert Smith, of Pennsylvania. It was of cast-iron, and was the foundation of many hundred of kindred patents of later date.

So late as the year 1637 there were only thirty plows in the colony of Massachusetts, but to-day undoubtedly the United States leads the world, not only in plows, but in all other agricultural implements as well; and there are at present no less than three different manufactories in the United States that claim to be able to turn out on an average at the rate of one finished plow per minute.

If we compare the tedious process of preparing the soil with a spade, or the more primitive method of preparing it with a hoe, with that of a three-horse sulky plow, the importance of the improvement is plain to the most casual observer.

In these days of active competition in all the arts and industries, the measure of almost every man's success is his skill and ability to excel his competitors in the particular line of his avocation. The farmer is no exception to this rule, and unless he avails himself of the improvements of the age, he will find himself distanced by his more enlightened and skillful neighbor.

The following is a fair comparison of the use of the flail with the latest style of improved threshing machinery, viz.: One man can flail out and clean about seven bushels of wheat per day, the last quart of a flooring requiring as much labor as the first half bushel. With a first class steam threshing rig and all the latest improved appurtenances, twelve men can thresh and clean about seven hundred bushels per day; or each man, with improved machinery, will accomplish eight and one-third times as much as he can without it.

Steam power is coming very rapidly into use on farms, and is destined to take the place, to a great extent, of horse power. At least, one crop of wheat was successfully cut in Hendricks county, Indiana, during the past season, by steam power

alone; thus establishing the fact that steam traction engines can be used for that purpose.

Every man should thoroughly understand the business he may undertake to do, and while this is undoubtedly the case, I believe almost any farmer of ordinary intelligence may readily acquire a sufficient knowledge of steam engineering to enable him to successfully manage a farm engine; for who have not known men of the most ordinary intellect, who were successful in that line. True, it requires care, patience and industry, but does not every other branch of farming require the same?

The speedy recovery of this country from the evil effects of the panic of 1873 is no doubt largely attributable to the immense export of agricultural products which took place thereafter.

In the year 1874 the export of agricultural products rose to over five hundred and fifty millions of dollars; nearly forty per cent. greater than this country ever before reached. That this effect could only have been wrought by the aid of improved machinery, seems an undeniable fact.

The most rapid increase in the use of improved farming machinery probably took place in the years 1875 to 1880 inclusive, and during that period the net increase of income of the farmers of America was one billion eight hundred millions of dollars, or an average increased net income of three hundred million dollars per year.

An eminent statician has estimated that the labor-saving machinery now used in the United States is equivalent in its producing power to the labor of twenty millions of human beings.

In the matter of taking care of hay, agricultural machinery is of the utmost importance. To "make hay while the sun shines" is a proverbial necessity. If the scythe, the hand rake and the pitchfork alone were used, to cut, winnow and mow, one acre of good meadow per day would be a fair day's labor for four men, but with a good mowing machine, a hay tedder, a horse hay rake, a hay loader and a horse hay fork, the same four men might readily harvest and put away six acres per day.

Of all labor-saving machinery, probably the most highly appreciated is the self-binder reaper. Where one man might, with extreme labor, cradle and bind one and one-half acres of heavy wheat per day, he can, by the aid of a good self-binder cut and bind fifteen acres per day, thus doing ten times as much with the machine as without it, and it is reasonable to believe that the seventy odd thousand reaping and mowing machines in use in the State of Indiana perform during the harvest season, labor at least equivalent to a quarter of a million able-bodied men.

The interests of the farmer and those of the manufacturer are reciprocal. Every intelligent manufacturer knows he can best subserve his own interests by best subserving those of the farmer, and every intelligent farmer realizes that he can not attain to his highest sphere of usefulness, or greatest degree of success, without making use of improved mechanical appliances.

WHEAT CULTURE.

BY HON. E. S. FRAZEE, OF RUSH COUNTY, IND.

As far back as authentic history goes, we find that man has cultivated the wheat plant; and next to animal flesh, wheat has been the chief article of food for civilized man. At as early a period as the 18th chapter of Genesis, we read of Sarah kneading the dough, and baking the cakes, upon the hearth, for Abraham's distinguished visitors. Joseph dreamed of the harvest field, of binding sheaves; of his sheaf standing upright, and his brother's sheaves making obeisance to his. We also read of the threshing floor of Joash; and of his son Gideon, engaged in threshing wheat, at the time he was called upon to deliver Israel.

The corn that was stored in the granaries in Egypt, in the reign of Pharaoh, against the years of famine, was wheat, not Indian corn. It was wheat, not maize, that the children of Israel carried in their sacks from Egypt to Canaan.

There has of late been a number of specimens of well preserved grains of wheat taken from the sarcophagi of ancient Egyptian Kings, found in sealed vessels, which had been deposited there anterior to the days of Moses.

Though the cultivation of the wheat plant has long ceased in Egypt, yet from engravings on ancient tombs at Thebes, representing the plowing, sowing, harvesting and threshing, there is no doubt but this cereal was cultivated from the earliest dawn of civilization.

Whilst the excavations were being made amidst the ruins of Ancient Pompeii, a number of well preserved grains of charred wheat were discovered.

The cultivation of the wheat plant would naturally exert a civilizing influence upon man. In order to cultivate the soil, it would be necessary, to some extent, to abandon his nomadic life, and follow more quiet and peaceful pursuits.

No savage tribe has yet been found that has cultivated the wheat plant.

On the other hand, all civilized nations pay more or less attention to the cultivation of the cereals. As man, by degrees, settled down—abandoned his wild, roving life—and turned his attention to the cultivation of the soil, it became necessary to have implements to turn and stir the soil. His inventive genius first constructed the plow; probably a forked stick was first used, followed by the harrow.

The use of these rude implements required the strength of animals. First, no doubt, the patient ox was yoked, brought under subjection, and learned to share man's toils, and next the ambitious horse was made to contribute to the wants of man.

As early as the twelfth chapter of Genesis, we read that Abraham possessed oxen, and that when Jacob returned from the service of Laban he brought his oxen with him. We also read in the sixth chapter of Judges that Elisha was plowing with twelve yoke of oxen. No doubt he was preparing his ground to sow wheat.

Whilst America is considered the native home of Indian corn, tobacco, and Irish potatoes, the country where wheat was first raised is unknown; it is supposed to be a native of Persia or India. Along the shores of the Mediterranean sea, there grows a wild grass, bearing small seeds resembling wheat. It is called by botanists *ægilops avata*. The seeds of this grass by cultivation have been developed into wheat. Mr. Esprit Fabre, a gardener living in the town of Ade, France, of his own accord, unassisted by the scientific world, commenced experimenting with the seed of this wild grass in the fall of 1838, prepared the ground and sowed the seed, and continued to each year until 1846. The crop of 1845 was decided by judges to be genuine wheat. Though I have no reason to doubt the result of these experiments, I have yet to be convinced that wheat, under any circumstances, will turn to cheat, or that cheat, by any process, can be converted into wheat.

The botanical characteristics of the wheat plant, and the wild grass seeds of the *ægilops* are similar; the characteristics of cheat and wheat are dissimilar.

The culture of wheat exerts a greater influence upon the commerce of the world perhaps than all other cereals combined. When we take into consideration the number who are engaged either directly or indirectly in this industry, we are astonished. First, those who are employed in preparing the soil and cultivating the plant; next, the vast number who are engaged in manufacturing the plows, the harrows, the cultivators, the drills, the rollers, the reapers, the threshers, the fans, the 25,000 flouring mills in our own country; the vast army that run the trains that transport the wheat and flour to market to feed the civilized world, we have some conception of the extent and importance of this industry. Certainly the cultivation of this cereal exerts a refining and elevating influence upon civilized man.

THE SOILS.

A clay subsoil, with a sandy loam for surface soil, is the best adapted to the culture of the wheat plant. The common notion advanced by writers upon the subject, that second-rate clay soil is best adapted to the development of this cereal, I think is erroneous. From long experience and observation, I have no doubt that the richer the soil, other things being equal, the greater will be the yield of wheat. I would prefer an upland soil, on which grew sugar tree, ash, black walnut, and beech. If the ground did not naturally drain itself, I would have it thoroughly underdrained. In order that the seed germinate there must be a certain amount of heat, moisture, light and air. Wheat will not germinate at a lower temperature than 45°; most plants require a warmth from 50° to 70° degrees. In a dry atmosphere the germ is not destroyed by extreme cold, until it is exposed to 58° below zero, which never happens in this latitude. On the other hand, steep it in warm water at 122°, which is only a little above blood heat, and in thirty minutes you destroy the germ.

Deep plowing facilitates the conditions for the germinating and growth of wheat. Ground that is well drained, plowed to a good depth, and thoroughly pulverized, will withstand extreme wet or dry weather much better. In time of drought, it is the deep plowed, well pulverized soil, that retains moisture; and in time of excessive rains, the deep plowed ground affords greater room for the sur-

plus water; it will thus settle in the sub-soil, and affords a reservoir, from which the plant may draw moisture in time of drought.

It is absolutely necessary to the success of the farmer who raises grain, that he keep up a regular rotation of crops. Wheat does well to follow clover, flax or oats. Red clover is the least expensive, and one of the best manures, to renovate an impoverished soil. The leaves of the clover absorb the oxygen and nitrogen of the atmosphere, while the top roots penetrate the subsoil and bring up the ammonia to the surface.

I have tried several times sowing wheat on an old timothy sod, but never yet with satisfactory results. A crop of corn may be raised on a clover sod, and that followed by wheat; but two crops of either wheat or corn should not be raised on the same ground without a liberal dressing of manure from the barn yard. To follow clover with wheat, the clover should be turned under when in full bloom, the ground plowed deep, and left to rot until seeding time, when it should be plowed shallow, or thoroughly harrowed, the seed sown about the middle of September, and put in about two inches deep. Early breaking of fallow for wheat is important. Break one-half of a field early in the summer, the other half in the fall, just before seeding, and the chances for a large crop are decidedly in favor of that which was broken first.

The drill has many advantages over the former practice of sowing broadcast. It takes less time. The same man and team can sow with a drill twelve acres while he is sowing broadcast and harrowing in eight acres, and at a season of the year when time is money, to be put back half a day, a rain storm may come and delay the seeding ten days. Again, one bushel and a peck of seed, properly put in with a drill, is better than a bushel and a half sown with the hand and harrowed in. In the latter case some seed is put in too deep and some too shallow, and some left on top of the ground to attract the birds and insects. In drilling wheat a small furrow is formed; the grain is deposited in the bottom of the furrows; the drill teeth deposits the fine, pulverized soil on the grain, which facilitates the germination and growth of the plant, which is not the case when the seed is sown broadcast. The winter freezing pulverizes the soil on each side of the plant; the earth gradually falls in around the roots of the young plant, and prevents its being thrown up, as is the case with broadcast wheat put in with the harrow. Besides, being put in at a uniform depth, the plants come on evenly and ripen with uniformity, which otherwise would not be the case.

Broadcast wheat is more liable to ripen unevenly, some spots ripe and some green in the same field at the same time, and consequently more liable to rust.

THE SEED.

The seed should be of a variety that ripens early; the later the variety the more liable it is to rust. The seed should be of the best quality, and well cleaned before sowing. He that sows cheat or cockle may expect to reap the same. The Good Book says: "Whatsoever a man sows, that shall he also reap." As a general rule a red-bearded wheat is the best adapted to Indiana. The Fultz, so far, has been an exception to the rule. The Fultz is the first smooth wheat I have ever raised for a number of years in succession with good results.

Should wheat be sown in corn ground it is better to give the corn one late plowing, so that the ground may be kept clean and mellow; at seeding time the five-tooth cultivator should go before the one-horse drill. When the corn is gathered, one or two loads should be left in the field until the following spring, so as to prevent pasturing the stock when the winter snow falls, as the cattle are usually left on so long that the wheat is damaged more than the stock pasture is worth.

HARVESTING.

I would prefer to harvest wheat early, rather than late; by all means do not wait until the grain is fully ripe. I think the proper time is when the wheat is in the dough, just after it has passed the milky state, just as the stalks have begun to turn a golden yellow.

If cut previous to this, while the grain is in the milky or sticky state, when pressed between the thumb and finger, the grain will shrink. The grain of early cut wheat is said by millers to be heavier, and to make whiter, sweeter flour than that which is allowed to stand until fully ripe; besides, early cutting prevents the grain from shelling out. The straw of early cut wheat shocks and stacks better, has less dust in it, is more nutritious, and makes better winter feed for cattle. When wheat is allowed to stand a few days after it becomes ripe, before it is cut, it shells out badly, which is quite a loss. There is less damage from rust when wheat is harvested early. This disease generally makes its appearance when wheat is in the milk, or dough. Early cutting will sometimes prevent great loss. Early harvesting requires great care and judgment in shocking, which should be done by careful hands, and never trusted to careless, inexperienced boys. Wheat once badly shocked can never be made to withstand the rains and winds. The consequence is sprouted, damaged grain, dark, unwholesome flour; the wife loses her patience, the man loses his temper when he undertakes to eat the unsavory, sodden bread; the miller buys the wheat at a reduced price, or rejects it altogether; and all for the want of being properly shocked.

The best way to put up a shock of wheat is to set up ten sheaves in a round, compact form, well braced, the heads all leaning towards the center, the butts settled well to the ground, capped with two sheaves, broken in the middle and laid on in the form of a cross, with the ends well spread out, which form a suitable cover.

The yield of wheat for the year 1883, both in quality and quantity, not only in our State, but throughout the United States, was a partial failure. According to the report of Mr. Peelle, State Statistician, the average yield in Indiana was 10.30 bushels per acre, making a grand total for the State of 31,405,573 bushels. In 1882 the average was 15.30 bushels per acre, making a grand total of 47,130,684 bushels. With proper effort Indiana should produce an average of thirty bushels per acre, with a grand total of over sixty million bushels.

The farmer of the future should keep his land well cleared, well drained, plow deep, have the soil well pulverized, have a regular rotation of crops, sow clean seed, cut his wheat early, and have it well shocked and threshed clean.

FORAGE GRASSES AND GRAZING.*

BY HON. P. S. KENNEDY, OF MONTGOMERY COUNTY.

It is a somewhat curious as well as instructive historical fact that less than a century ago blue grass, now regarded as indispensable on the farm, was treated as a pest, which all good farmers were expected to get rid of as soon as possible. Its great value was wholly unknown, and it was not until after years of denunciation and bad treatment that it worked its way to its present high position among the forage plants. We should learn from this not to be too hasty in rejecting anything that presents itself for experiment and consideration. It is very probable we have not yet arrived at perfection in our knowledge of the forage plants, and it is quite certain that the great bulk of our farmers have not yet learned much about the business of grazing stock. England is a small island, densely populated, yet more than one-half of all the arable land in that country is kept constantly in grass, and it is made to yield from \$15 to \$20 per acre with little or no outlay for work. The farmers there have learned how to make the most of the grass, a knowledge that we have yet to acquire. Herbage is the natural food for horses, cattle and sheep, and if pastures are properly managed, they will thrive and fatten on it the year round, except when it is covered with snow. The difficulty in the way of profitable grazing in Indiana is that we have not systematized the business. Few have yet learned what kinds of grass are most profitable, and fewer still know how to have an abundant supply of green herbage at almost all seasons of the year. What grasses grow best in dry weather? what best in cold weather? are questions that every farmer should know how to answer at once, else he will not be able to provide for green feed during long droughts, and for winter. Almost every one knows that the roots of blue grass do not penetrate to a great depth in the ground, and that, therefore, it does not grow well without plenty of rain. What, then, shall we substitute for blue grass during long droughts? A few farmers have learned that orchard grass grows well in dry weather. It has a mass of roots that penetrate the ground to a great depth, and draw moisture from below when there is none above, and hence it does not cease to grow even in the severest droughts, and it is quite as nutritious as any other grass. During several years past I have endeavored to gather evidence from practical farmers and stock raisers, touching the value of orchard grass, and I propose to give here fair specimens of what I regard the common conclusion of hundreds of intelligent and observant men who have experimented with it. The first witness I shall introduce is Mr. T. A. Cole, of Madison county, New York. In a letter to the New York Tribune, he says:

"I have settled upon orchard grass as possessing greater merit than any other, for both pasture and meadow, for fattening animal or for dairy stock. When cut for hay just before its bloom, and cured with as little sun as possible, it will make more milk, of better quality, than any other variety known to me. Our twenty cows are fed no other hay during the winter, and though a large proportion are in milk, many of them are fit for beef in the spring. The yield of butter is far above

* An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

the average in quantity and quality; it is not easy to distinguish between butter made in June and January. For pasture, orchard grass is as good as for meadow. I have one lot partly seeded to this grass; the remainder is in native grasses, and counted very good, but the cows have a preference for the plot of orchard grass, never allowing one stalk to go to seed, while other portions of the field can be mown with profit. It is always green and fresh when other grasses are brown and dry. It makes permanent meadows or pastures; it yields far more than most other grasses.

"When sown thick enough it does not grow in tussocks. Many weeds, such as the white daisy, will not grow in the same field. It shades the ground in summer, and if allowed a few weeks' rest from cropping in the fall will mulch it in winter. Wherever it is grown the land seems to become richer all the time. I have seen it sown on ground infected with quack to such an extent that it could not be tilled to advantage, and in five or six years not one quack root could be found; it was smothered. I was the first to grow it in this section; now hundreds of farmers are raising it, and in every instance consider it superior as a forage plant. One of my neighbors has a fine pasture of this grass, and to my certain knowledge he stocked three times during the past summer with store cattle, and in each instance they were sold to the butcher at the end of about two months. Hundreds of bushels of the seed are being sown annually in this county. One seedsman tells me his average is 600 bushels against twenty fifteen years ago. There is no delusion about it; it is the coming grass."

This is the opinion of a leading and intelligent farmer far to the north. Now let me introduce a witness, equally intelligent, from a region much farther south. Mr. Richard Waters, of Oldham county, Kentucky, lately wrote as follows:

"Orchard grass will graze more stock to the acre, and can be grazed ten days earlier in spring, than any other grass. When eaten off to the ground it will grow three inches higher again in ten days. I graze annually from three hundred to four hundred head of cattle for the New York market, and grow all kinds of grasses, but I find I make more pounds of beef off the orchard grass than any other. For milk cows and sheep it has no equal; and it will grow more in a week during July and August than any other grass will in a month."

It will be observed that these two witnesses, living almost a thousand miles apart, have reached the same conclusion touching the value of orchard grass.

Now let me call a witness who lives in a locality between the residences of Mr. Cole and Mr. Waters. Mr. W. F. Talant, of Montgomery county, Virginia, says of it:

"There is no other grass that can be compared to it. This year we have experienced the most severe droughts known for years. Fortunately, a large part of my farm is in orchard grass, and I have now an abundance of hay from it. All the orchard grass I saw seemed to be little affected by the drought. One acre of orchard grass will afford as much pasture as two of clover and timothy."

Expressions similar to these might be multiplied almost indefinitely from letters and papers in my possession. But I have given enough to show the general estimate placed on this grass. I may add here that recent observations show that it will remain green under the snow in winter like blue grass, if the ground is not too

much frozen before the snow falls; and it has lately been found growing in Alaska. It is quite as hardy as blue grass, and possesses the great merit of growing thriftily in dry weather when blue grass will not grow at all. And in concluding what I have to say about orchard grass, I will observe, as a warning, that the seed of this grass will not germinate after it is two years old, and that there is great danger of being imposed upon in procuring seeds.

There is another grass, which, so far as I know, has never received the least bit of friendly attention from any one in our State, and yet I am certain it has merits that entitle it to some degree of consideration. I mean the flat-stemmed blue grass, designated at the Agricultural Department at Washington as English blue grass. It is known to botanists as *poa compressa*. It is really the species from which the name "blue grass" originated, both its blades and stems being blue instead of green. What we call common blue grass, or Kentucky blue grass, is known in those localities where the *poa compressa* grows, as green grass. I will mention its merits, and then the charges that are made against it. It remains green and succulent throughout the longest droughts. I have observed small patches of it for years, and have never known either its blades or stems to die till killed by the cold winter. I took particular notice of it during the great drought of 1881, and know that during the whole of the six dry, hot weeks, during which not a drop of rain fell, it remained perfectly green. Another merit it possesses is its great weight. Its stems differ from all other grasses in the fact that they are solid like straws of broom corn. Last summer I measured a square yard of this grass, cut it all off carefully, and dried it thoroughly in the hot sunshine, and found that it weighed one pound. One pound to the square yard makes 4,840 pounds, or nearly two and a half tons to the acre. For hay it has been pronounced superior to any other grass by some who have experimented with it; and the chemist of the Agricultural Department, after a careful analysis, has demonstrated that it contains more nutrition than any other grass. Mr. Gould, of New York, in a letter which I have read, says he has raised it for years, and that it will fatten cattle and horses equal to oats and hay combined. It has few blades, but the stems grow very thick on the ground, and sometimes as much as two feet high. The seeds, which are very small, ripen and fall off the last of July; but, as I have already said, the stems and blades never die till killed by the winter. And now, as to the other side: I called the attention of the Montgomery County Farmer's Institute to this grass last spring, and it met with a universal denunciation, as the Kentucky blue grass did a hundred years ago. Some said if it had any merits they would have been known long ago; others that it was impossible to get rid of it when it got on a farm—that it was excessively tenacious of life; that it had a mass of tangled roots through which it was almost impossible to plow. Others alleged that when cut off or eaten off after the ripening of the seed, it would not grow again till the following spring. This I have observed to be true, and it constitutes the most serious objection I have heard made to it. I do not mean to say that this grass will prove of any particular value here. I only mean, by saying what I have about it, to call the attention of farmers to it that they may try it and pass judgment upon it intelligently. If it be ever so great a criminal on the farm, like other criminals it is entitled to a fair trial. I believe a mixture of this and orchard grass would be

about the best thing that could be devised for dry weather. Orchard grass is inclined to grow in bunches or tussocks. The flat-stemmed blue grass would fill the spaces between, and the whole mass would make a very great abundance of green feed during long and severe droughts. With pastures of this mixture for dry weather and plenty of Kentucky blue grass for winter, we should be prepared to keep cattle fattening right along most of the year with but little grain or hay.

There is another grass which might prove valuable here for use in dry weather. It is called Mesquit grass, and grows wild in Northern Texas. I know of but a single experiment that was ever tried with it in this latitude. Mr. James A. Lewis, of Kanawha county, West Virginia, some years ago procured a few bushels of the seed of this grass, and gave his experience as follows: "On comparing it with the Kentucky blue grass, orchard grass, clover, and timothy, as cultivated on the same farm, I am inclined to rank it as the most valuable of them all for this section of country. It seems to stand the climate well, completely covering the ground, and springing up soon after cutting, being less affected by drought than other grasses. It also remains green during the fall and winter, when it is much relished by cattle."

In England, where the science of grazing has been thoroughly studied, one acre of ground is made to fatten a bullock and three sheep, and to yield twenty dollars clear profit. In this country, if a farmer makes five dollars from an acre of grass land, he thinks he is doing well. Why this great difference between the profit of grazing here and in England? It lies in two facts: First, England has a moist climate, and the grass there is seldom burnt up by drought as our blue grass is here; and, second, English farmers have learned that pastures composed of a great variety of grasses are doubly productive. An English farmer will sow twenty or more varieties of grass in the same field. Here we sow only two or three varieties, if we sow any, and I think I am safe in saying that farmers generally sow none. An old and very intelligent farmer once told me that years of observation and experiment had convinced him that two varieties of grass, sowed together on one acre, would afford as much hay or grazing as two acres would with a single variety. It is undoubtedly true, that cattle are fond of a variety of food. It is the observation of all that they thrive and fatten better when they have free access to many different kinds of herbage. Some times a herd of cattle will leave the best blue grass that ever grew to strip the leaves from a fallen tree, or to browse on the undergrowth of the wild woods. I think the great need of Indiana to-day is grass. We want all the valuable varieties of grass in abundance—we want all our waste places cleaned up and put in grass. It is supposed by some that Indiana soil is not adapted to grass, but this is a mistake. There is no land in the world that will produce blue grass, timothy, orchard grass, rye grass, red top, etc., better than Central Indiana. With a view of ascertaining something about the comparative profits of grazing here and in the celebrated blue grass regions of Kentucky, I recently wrote a number of letters to numerous cattle raisers in this State and that. I was much surprised to find that the profits were always put higher in Indiana than in Kentucky. The letters I received from Kentucky stated that from thirty to fifty head of cattle were enough to put on one hundred acres of good grass, and that they would gain from 100 to 250 pounds to the head, during a season's grazing, say from the 10th of May to the 1st of November, the growth depending largely on the sea-

son, and the kind of cattle. Many in this State assured me that they had pastured seventy-five head to the hundred acres, and that they had gained in one season's grazing an average of 250 pounds. One gentleman of my own county (Montgomery), stated that he had one season pastured a herd of cattle from the 10th of May till the 1st of November, which gained, on an average, 400 pounds. The cattle were, however, of the best grade, and the season unusually favorable. The pasture was principally blue grass.

But, if we can depend on pasturing fifty head of cattle to the hundred acres, with a gain of two hundred and fifty pounds to the head, grazing will be quite as profitable as raising wheat, with a general average of twelve bushels to the acre. But I feel sure, that with proper effort, we will yet be able to make our pastures quite as profitable as pastures are in England. If we select varieties of grass that will not be destroyed by droughts, and other varieties, that will stand grazing late in the fall and early in the spring, and put some system and study into the business, I am sure we will yet be able to make pastures that will graze seventy-five head to the hundred acres, with a general average of three hundred pounds gain in a season's grazing. This, at four cents per pound, would make nine dollars to the acre, which would be nearly all clear profit, as the outlay for labor would be very small. I do not believe we can rely on an equal amount of profit from grain-raising.

In writing this paper, I have not aimed to do more than to call attention to what I regard as a much neglected branch of agriculture, and to attempt to awaken a new interest in it.

DISCUSSION.

Mr. Thomas Nelson. I have been very much interested in listening to the address. I understand Mr. Kennedy desires a general discussion of this question, if it is agreeable, to-day.

President Mitchell. Mr. Kennedy has presented some views, especially on orchard grass, that is different from what I expected, and I would like to have it discussed.

Mr. S. R. Quick. I fully concur with him in reference to orchard grass and the varieties of grass commonly sown. I have been experimenting some in grasses, and raising considerable stock, so I have been putting my land mostly to grass. The orchard grass is one of the best grasses for dry weather, and my experience is that it is one of the best fattening grasses. It needs to be sown quite thick on the ground. I sow from two to three bushels to the acre, and sow in the fall with wheat, and harrow it in. I sow blue grass at the same time—one bushel to the acre. In the spring I harrow the wheat, and sow clover one bushel to seven acres. By this plan I get a mass of grass that covers the ground. Pasturing it for several years, the clover disappears. I re-sow with other seeds, in order to have a good crop of grass. Last season we had a drought. We had several kinds of grass, and I found by turning my stock off several days it would shoot right up again, and was soon good grazing. The stock fattened very fast on it. I have mowed some of it, orchard grass and clover mixed about one-third. I commenced feeding starch feed with straw and corn fodder—they don't do so well as on corn. I then put them to this hay without any extra feed whatever, and have been now (the 15th of this month) two months on this kind of feed. At the end of the first month they

gained forty-three pounds per head. My stock have good shelter and are doing finely. I find that any thing that is worth doing at all is worth doing well. The seed should be well covered. When you get a perfect sward try sowing it thick. The grass is finer and more tender, yields more to the acre, and does not require to be re-sown if you get a good set. I have some sward on my farm that was sown thirty years ago. I have sown it a little thicker than it was. I do not think we can put too much seed on the ground unless we smother it out.

A Member. I am satisfied, if we would use our land more to grass, we would have better animals. From an experience of twenty years, I am convinced that corn is too heating. If a horse can get to the grass in the winter, and get full rations, he will come out fat in the spring. An animal knows the value of grass, and a horse will paw the snow off to get it. It is necessary to have good fertile land for the successful growing of grass, but sometimes we do not take this into consideration, and put our seed on poor land, and the result is a poor crop. If you could keep the ground covered with a sward from ten to eighteen inches long, it protects itself against the snow so animals can get at it, and they will strip it bare by March. I have fed cattle that way without giving any corn, and brought as much on the market and made just as good beef. Our cattle refuse to eat corn in many instances where they have access to grass. Animals, by nature, prefer grass, and we should raise more of it and furnish them more. We should not go into any special crop, for it is risky. My experience is that the grass is the most profitable of any crop we can raise. We can continue to grass land, and it grows better, but it is otherwise with grain. There must be a supply, or exhaustion will follow.

Mr. Hughes. I concur with the remarks that the gentleman has just made. The soil is greatly reduced by continued crops of grain. The farm I now own is in Lake county. I put stock on it, but my grass was not sowed heavy enough. It was said that tame grass would not grow in Indiana; but this is a grave mistake. I have commenced grassing my farm, and shall sow heavy. I used to sow a bushel to seven or eight acres. I sow now a bushel to four. By so doing it forms a good sod at once, and it is not long until I can pasture it; the heavier the sod is, the more productive it is. My neighbor asked me where I got my grain. I told him I was not a grain raiser; that I grew my stock on pasture and bought my grain. He told me my land had been grassed so long it would raise a bountiful crop of corn. I told him that I considered my grass of more value to me than the corn, and would not plow my fields up. Men differ on this subject. I told my friend that while I owned my pastures they would probably never be turned over again. My experience is, the longer these pastures remain the finer and richer feed they produce. The experience of all our dairymen is that the oldest pastures make the best grass. No matter how many good grasses make up a good sod; all the better. I would fully agree with the man who sows heavy; better sow once heavy than a dozen times too thin. It is argued that clover will die out, but in the course of a few years it will reappear again. Some say that good land is too valuable to pasture stock on; that poor, wet land is sufficient. I can not see it in that light. I believe it my duty to encourage the people of Indiana to grow more grass and turn their attention to stock raising.

President Mitchell. I have not had a long experience in the raising of orchard

grass, but it is my opinion that it is best adapted to the shade. It is a grass of rank growth, and when not sown thick it is inclined to run up into tufts. As to cattle and sheep preferring it to timothy and blue grass, my stock do not so show preference. As to the fattening qualities, I consider timothy and clover preferable. Blue grass is an excellent grass. Two years ago I sowed a field of blue grass and clover, and I have an excellent pasture, but I would not give it as much preference as timothy and blue grass mixed.

Mr. I. N. Cotton. I would like to know whether it will do in the wood land?

Mr. Cockrum. I have sowed this grass in woodland for ten years. I sow one-half bushel per acre. At first it was thin, but afterwards became thicker, and is now a perfect sward. It is the earliest and best grass I have on my farm. For wood land there is no grass equal to the orchard grass.

TILE DRAINAGE.*

BY JOHN RATLIFF, OF GRANT COUNTY.

After there has been so much said, and well said, and so much written, and well written, on this subject, it may seem almost presumptuous in me to now read a paper before this body on tile drainage. But it is old truths oft repeated that make impressions or make reforms. Ministers of the gospel have been preaching old truths for more than eighteen centuries, and not half of the world believe them yet, and much less than one-half practice them, and it is from a knowledge of these facts that I now consent to read a paper before this Board on this, to many of you, a very familiar subject. My subject is

TILE DRAINAGE.

To properly get at the subject we must first consider the subject of drainage in general. The necessity of drainage being established or conceded, then the question as to the best kind of drainage will be in order.

The earth is the great receiver of the seed from which the farmer is to reap his future crop, and without it or with it alone he would fail.

There are certain other essential things without which the earth would be useless to the farmer. For seeds to germinate there must be *moisture, heat and air*, neither of which can possibly be dispensed with in the germination of seeds and the growth of plants—moisture and heat without air will not produce germination. Air and moisture in the absence of heat will not do. Otherwise seeds would

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

germinate with the thermometer at zero. Then we find these three elements are essential for the growth of the crop, and that condition of the ground that furnishes these elements in due proportions is best adapted to the farmer's purposes.

As moisture is usually present, and frequently greatly in excess of the needs, we first consider the necessity of air.

The seed being placed in the ground, and having absorbed sufficient moisture in a proper temperature, the air furnishes the oxygen to unite with the carbon, (the greater bulk of the seed) which holds the germ, or life of the seed in check, and carries (the carbon) off in the form of carbonic acid gas, leaving an excess of oxygen, which furnishes food for the young plant; but this stage is reached only when there is a proper amount of air, heat and moisture. When the earth is saturated with water the air is to a great extent excluded from the soil, the water having taken its place. Then we have an excess of moisture and a deficiency of air—so also in reference to the heat. When we wish to boil a kettle of water we build the fire under and not over the kettle. It would require a lively fire to boil water below the fire, so it would require a very warm sun to warm the ground filled with water, for two reasons: First, water is a poor conductor of heat downwards; and, second, the evaporation of water from the ground carries off heat from the surface and leaves the soil cool. Therefore, to increase the temperature of the soil and supply it with air, the water must be let off. The air will follow the water as it percolates the soil, filling the interstices, carrying with it warmth instead of carrying it off in excessive evaporation from an over supply of water, and the soil being thus freed from water admits or conducts heat also from the sun. The necessity of drainage being admitted, it will be in order to speak of the different kinds and cost of drains.

Drains should be at least thirty inches deep, and deeper would be better when there can be sufficient outlet and where the soil is not of a compact clay nature.

To construct a thirty-inch open ditch with side slopes of one foot horizontal to one perpendicular, which is the utmost uniform rule with our best engineers operating under our State ditching laws, will, at twelve cents per cubic yard of excavation for eighty rods of ditch, cost the sum of \$51.28. To construct the same ditch for tiling, at the same rate per cubic yard, will cost \$14 65, leaving a balance of \$36.63. This will pay for five-inch tile for the entire ditch at forty cents per rod, and have left the sum of \$1.63, which will pay a hand for laying in the tile. The half acre of waste land along the open ditch the first year will pay for hauling the tile and filling in the ditch. We find from this calculation, which we hold to be a fair one, that a five-inch tile drain can be constructed at the same cost as the open ditch to the depth of thirty inches. If the ditch is to be deeper than thirty inches, or if the tile is to be less than five inches, in either case the difference will be in favor of the tile drain in cost.

Wood under-drains will answer the purpose for about twelve years, that being about the average life of a wooden ditch, but the excess of cost in cutting the ditch for timber, and the cost of good, sound timber to cover with, will exceed the cost of tile for ordinary drains. I have tile drains that have been in operation for twenty years that are doing as good service as twenty-inch wide timber drains did in former years through the same lands.

A very important drain where there is sufficient fall and depth obtainable, but too much water in a high time for tiling, is to construct an open ditch with sloping banks and about two feet deep, and in the bottom of this open ditch construct a tile drain of large tile and connect the laterals for the fields with it, leaving the large drain open for flooding rains. The pressure of the water from the laterals keeps the main tile open, and the labor of annually keeping the large drain in repair is saved, and a strip of grass or pasture may be raised over the drain where the same can not be cultivated in grain.

The difference between open drains and covered drains on the farm can better be illustrated by the following example:

In my county we have a man who has the reputation of being a farmer, who goes over about 150 acres. In each field he has one to three open ditches partially filled, all of which have a good outlet, and could be tiled with tiling five inches or less. At each ditch is a "turn-row," and a strip of tall rag-weeds and spanish-needles point to the passer-by the line of his drains. We find at the county seat, of record, a mortgage of \$5,000 on the farm with delinquent interest. In the same neighborhood lives another man who also has the reputation of being a farmer of about the same acres, but his fields are not decorated with open ditches and strips of rag-weeds and spanish-needles. The water flowing from his tile drains explains the difference in appearance of the farm, and instead of the \$5,000 mortgage we find a balance in his favor at the bank of \$1,000 or \$1,500. This is a fair illustration of the difference in the two systems. The farmer with open ditches about over his farm, and plows leaning up in fence corners during winter, and the drill and mower, if he has them, stacked in the corner of the barn yard, is not a safe man to loan money to.

CONSTRUCTION OF DRAINS.

The construction of a tile drain doubtless seems so simple to many that to speak of it will be considered unnecessary, but since we have seen so many farmers take the hired hands and a line and old flat spade, and trace the line of the ditch, we conclude somebody ought to venture a suggestion on this branch of the subject.

It is a mathematical axiom that the shortest distance between two points is a straight line, and it is equally true that the straighter the ditch from its source to its mouth, the greater the grade or fall in a given distance; consequently the more rapid the flow of water.

Stake off the line of the ditch, making as few elbows or crooks as possible; hitch the team to the plow so it will run where it was made to run—in the ground; then get between the horses' heads, taking each horse by the bridle near the mouth, and put a good hand at the plow handles; then walk directly to your stakes, taking care to not look back to the plowman, and thus trace your line of ditch, and one or two furrows will lay off the ditch and remove from six to eight inches of dirt. Then two spades with tiling spade will give a three-foot ditch. Trim nothing but the bottom, and make that a uniform grade. Put in the tile with close joints, and cover with bottom clay to the tile. Sink a hole, or well, at the upper end of the drain so as a ten or twelve inch tile shall stand on end and low enough to lay the

last tile over the top of it. Fill this large tile with broken fragments of tile in small pieces, and cover the last tile which opens into this reservoir with pieces also, and cover up. This reservoir can be made in fifteen minutes, and will collect the water for rods around, which will start in at the upper end and keep the tile cleared of sediment, and also dry the ground at the upper extremity of the ditch as readily as at any other point. A ditch constructed in this way economizes at least one-third of the labor. Should the drain get out of repair it can be readily retraced, if made straight, by running down a small iron rod to the tile in a few places in a wet time. The practice of laying in tile so some of them will be half full of water while others near the mouth of the ditch are above water, is a very common error and a slander on the tile maker. A uniform grade is a *sine qua non* in tile drains.

CAPACITY OF TILE.

As to the size of tile there is a diversity of opinion, owing in a great measure to the circumstances or standpoint from which the opinion is formed. In an address made by a learned professor of an adjoining State, and published in the *Drainage and Farm Journal* some years since, the rule is laid down as follows, (not, however, as infallible in all cases):

“For drains taking only the rainfall upon the land, the tile should be two inches for four acres, three inch for nine acres, four inch for sixteen acres, five inch for twenty-five acres, and so on.”

This gives us eight-tenths of an inch in capacity per acre very nearly. The size of the tile is here found by extracting the square root of the number of acres to be drained, and, like many other theories, is very nice on paper, but won't do in the ground. The rule ignores some important points to be considered in practical drainage. The capacities of different sized pipes, and the capacity of the same pipe with varied inclinations, are important features to be considered in this subject. The rule proceeds on the supposition that the capacities of pipes are in the ratios of the squares of their diameters, or as the cubic inches of caliber or sectional area, but the ratio in cubic inches of a 2-inch and a 9-inch pipe is as 1 to 9, and the ratio of capacity of discharge of fluids as 1 to 15. While the ratio of a 2-inch and a 12-inch in cubic inches is as 1 to 36, the comparative discharging power is as 1 to 88. We thus see the comparative discharging power of pipes or tile increases very much faster than the cubic content of caliber as we increase in size. A 3-inch pipe, with a discharging power of near three times a 2-inch pipe, with a fall of one inch to the 100 feet, discharges about 13 gallons per minute, or 47 barrels of 40 gallons each per day, but a 2-inch rain upon an acre of ground supplies it with about 1,100 barrels, which will require the 3-inch tile over two days to carry it off, provided we have no other means of escape. It is, therefore, very evident the rule is not a good one, and the size of the tile too small.

The discharging power of a pipe varies directly as the square root of the head or fall, or as the square root of the inclination. A drain with a fall of four inches to the 100 feet will discharge twice as much water as one with a fall of one inch to the 100 feet. The average fall per mile of ditches in the central and level por-

tions of our State is probably somewhat less than four feet. Probably seven or eight-tenths of an inch per 100 feet, and a rule that will apply elsewhere, will not apply here for ordinary drains. Remembering that the capacity of a three inch tile is *seven cubic inches*, the capacity of other sizes may be found by the following simple method: Square the diameters of the tile and divide the larger square by the smaller, and multiply the quotient by seven for the capacity of the larger tile in cubic inches. Thus, $3 \times 3 = 9$ and $7 \times 7 = 49$. The larger contains the smaller 5 and 4-9 times which being multiplied by 7 (the cubic inches in the 3-inch tile) gives us 38 cubic inches for the capacity of the 7-inch tile, omitting decimals. It must, however, be borne in mind, that we here make no allowance for the friction of the water against the sides of the tile. Four 3-inch pipes have the same capacity in cubic inches as one 6-inch pipe, but the four have twice the surface exposed to the friction of the water, and therefore have not the capacity of discharge with a 6-inch. While the 6-inch has four times the capacity in cubic inches, it has about five and a half times the capacity of discharge of fluids, and while the velocities of discharge of pipes are as the square roots of the head or inclination the transporting power of currents to carry sediments vary as the sixth power of the velocities. Velocities in the ratios of 3 to 4 have a transporting power as 1 to 5. An increase of $\frac{1}{3}$ in velocity of flow, and consequently discharge of fluids increases the transporting power five times. It is therefore necessary, in order to have a sufficient uniform transporting power, to prevent collection of sediments in the drain to have a sufficient uniform fall. Velocity of flow and discharge depend on fall and depth of drain. Tile with smooth inside will have a more rapid flow and discharge.

We sometimes hear of individuals putting in what is called stand-pipes at convenient intervals to admit air to the drain. These stand-pipes, or air feeders as they are termed, are probably no detriment to the drain, but a superfluous appendage. Tile run full with or without stand-pipes when there is water sufficient to fill them. To suppose a tile drain to be partially filled with air when there is sufficient water in the ground to fill the tile and stand from two to three feet above, is to ignore the principles governing both fluids. As well expect to find a rain-barrel half full of air at the bottom and half full of water on top as to find tile half full of air and the ground saturated with water two or three feet above. The interstices or cavities between the particles of soil furnish all the air feeders necessary to the underdrain and fill it with air as the water is drawn off. Air stands above the water table and follows it as it recedes.

So varied are the circumstances connected with tile drainage that it is impossible to give any rule that will universally apply. Difference of fall, condition of soil, nature of sub-soil, all have a factor in the tile drain, and nothing but observation and experience can safely determine the proper size and depth of drains. I have never found any place for a 2-inch tile, neither do I want a one-foot deep tile drain, for they are hardly admissible in any case. A few inches in depth in the bottom of an ordinary drain, when compared with the entire cost, is a very light expense. It is the bottom spade that does the work. An increase of head and consequent increase in discharge of water is not the only benefit to be derived from the depth of drain. A very important point gained in the deep drain is that

the water is drawn off from the soil to the depth of the drain during the intervals between rains, and room made for a considerable portion of an ordinary rain below the surface.

In conclusion, it may be proper for the purpose of showing the increasing interest and importance of the business, to give some tile statistics, for which we are indebted to the *Drainage Journal*:

Manufactories in United States in 1883	1,934
Of this number Indiana has 34 per cent. (661)	
Miles of tile laid in United States in 1882.	52,674
Miles of tile laid in Indiana in 1882	14,000
Miles of tile laid in Illinois in 1882	20,000
Miles of tile laid in Ohio in 1882	13,000
Total miles for these three States	47,000
Miles laid by all other States	5,500

About 90 per cent. are laid in the States of Ohio, Indiana and Illinois.

There are employed in the manufacture of tile over 12,000 men, and over 10,000 are in Ohio, Indiana and Illinois.

Value of product in 1882, \$5,500,000.

Indiana in 1882 laid nearly as many miles of tile as in all former years.

DISCUSSION.

Mr. Davidson. Has there been discovered any kind of auger that will bore a tile? Tile often become obstructed by vermin, such as minks, muskrats, rabbits, etc. The question is whether there is, to the knowledge of any member present, a bit that is sufficiently hard to bore so as to insert wires. I took a tile to one of the best hardware men in Crawfordsville, and asked him if he had a bit that would bore a tile. He bored a brick bat right through, but when he tried it on a tile he did not penetrate it 1-16 of an inch. If we had something to bore with we might insert wire and stop those vermin out.

Mr. Ratliff. Some of our tile makers make these holes before burning them.

Dr. Brown. I know of but one obstruction that can permanently obstruct a tile laid at proper depth, and that is the filling up with roots. Where the roots of trees penetrate and form a mass, the water is unable to remove it. But not so with any other obstruction to tile laid as it should be. I discard the

idea of thirty inches. The fashionable depth was twenty-four inches; but I discarded that as far back as 1853. I produced the first paper read on drainage before this convention, in 1853, and have the silver cup to show for it. I am down now to four feet. If you have not got an outlet, make one. If you have a head of four feet, that head will remove any obstruction, except roots. A muskrat can not resist a head of four feet of water. One advantage in deep drainage is to clear the tile; another advantage is that it is much less liable to be obstructed by roots than if very shallow. Willows and some other kinds of trees will throw roots down twenty feet into wells and spoil the water. No man should suffer a willow to grow less than one hundred yards from a ditch laid with tile. The elm and cottonwood are also troublesome trees about tile drains. The common timber may be tolerated within one hundred feet of such drain. I have never known an apple or peach tree to obstruct a tile yet. I must inform this honorable board that I have become a farmer in the last quarter of a century, being the owner of one at this time. I have just made a contract with a man, as soon as the weather will admit, to take up all the tile on it, put down ten years ago thirty inches, and then I will lay off my ditch and put it down four feet deep. There are many places in Indiana you can make an outlet if you have no surface outlet. Here we have below our clay, and between it and the lower blue clay, a bed of sand everywhere. If you can not get an outlet otherwise, go down to that bed of sand and wall it with brick. Fix it so you can cover it with a small stone and put the tiles of your field into that. Some of the heavy rains will fill it to the top, but it won't remain so long. The water in your wells, sometimes in a wet time, will raise ten or twelve feet, but will not remain long if you have a bed of sand.

Mr. Davidson. I have considerable trouble with the vermin stopping my tile during crop time. They will stop the drain forty rods from its mouth. The trouble is just above where the water sinks.

Dr. Brown. I made an experiment some years ago on a tile

to ascertain how much it would take to obstruct one that was four feet in the ground. I took up one section of a three-inch tile and filled it with mud, tight, and put it in its place again, and filled it up, but never knew any obstruction. I watched the tile in the run, and found muddy water coming out. A tile is not easily obstructed with any kind of sediment with a pressure of four feet of water above.

Mr. Smith. We have a clay soil. When tiling is too deep, it does not seem to draw off so well. After you go down twenty inches it takes a long time for it to drain off. We differ from the Doctor in some respects on account of the soil. Where the soil is porous enough, four feet is best.

Dr. Brown. You must wait with tile for the full benefits. Should my tile lay twenty years, you will find the soil mellow. We must wait for results, however rapidly after the process starts out in the mellowing and the breaking down of the tenacious clay soil. Mr. Johnson knows the condition of my soil near Irvington. It is a tough soil. My tile has been in ten years, and the ground is mellow now. I am going down forty-eight inches and mellow the balance of it. I had some in two feet, but I took it up and put it down two feet more.

Mr. Mitchell. Judge Jones, of Ohio, while traveling in England a few years ago, noticed some of their drains. After returning to this country he said: After putting their tile in four feet the earth settled in so tight that they took it up and put it in a more shallow depth.

Dr. Brown. My position is not based on any theory particularly. In 1854 I lived in Crawfordsville, and had drainage on the brain at that time. There was a piece of ground back of the lot I lived on, an eye sore to me, one of those alder swamps, perhaps a half acre, grown up in bushes, belonging to a neighbor. He cut the bushes out and made a pond of it. I did not like it in the way of health, so I bought the half acre and paid \$25 for it, and went to work to put a drain through the middle of it. Twenty inches down I struck that hard blue clay, and put in the first main ditch through it. I took it out and put the pick in the blue clay and went down thirty inches, and put

in more drain through the middle of the pond, and carried the water off. I produced a fine crop up to within ten feet of the drain. In 1857 I concluded to put in some lateral drains, and commenced digging with the same soil, and when I got to within a rod of my main drain all at once the ground broke loose, and from thereon it was nearly as loose as the top earth. If I got two inches below the main drain, I found the ground as hard as before. Now the question is what made that immediately on each side of the ditch loose, if not the effect of the air? Gentlemen, we should wait for results. We are too much in a hurry. If things don't prove in a few days, we can't wait. I have "learned to labor and to wait."

W. B. Seward. The bits for boring tile can be found now. They are made with diamond point, but not such diamond as is worn. They will bore anything—glass, if desired.

OUR PRODUCTIVE INDUSTRIES.*

BY HON. WM. A. PEELLE, JR., CHIEF OF THE BUREAU OF STATISTICS.

Mr. President:

I am advised by the Secretary of the State Board of Agriculture, Alexander Heron, Esq., that the Executive Committee designated "Our Productive Industries" as the subject for any remarks it might be convenient for me to offer on this occasion.

You may readily understand, Mr. President, that on this historic day (8th of January) I could have selected other topics worthy of reflection by the people of Indiana and of this republic; and yet, sir, I am led to the conclusion that, in speaking of the productive industries of Indiana, its wealth, its progress, the intelligence and refinement of its people, we do pay a generous tribute to the sterling qualities of the great men of the past who were the architects of our system of government, among whom Andrew Jackson, the soldier and statesman, president

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

and citizen, whose glorious victory over a foreign foe made the 8th day of January forever memorable, and whose administration as President shed fadeless luster upon our republican institutions, may with eminent propriety be named on all occasions when men discuss questions relating to the resources of the country he loved and for the liberty and happiness of whose people he labored with a heroism, devotion and wisdom which will grow brighter as the years roll on, and which have, by common consent, made the 8th day of January "Jackson's day."

The subject which I am required to discuss leads at once and directly into the field of statistics. By almost universal consent statistics are regarded as dry, hard and uninteresting. It must be confessed that, with rare exceptions, they are devoid of sentiment. Poets steer clear of them as do mariners of shoals, reefs and rock-bound coasts. Orators occasionally weave in a few numerals to embellish their figures of speech. Statesmen know their value, and the business men of all lands consult them with a devotion akin to that which distinguishes the heathen worshippers when they kneel at the shrines of their gods.

Indiana has not been unmindful of the value of statistics, of which the various departments of the State government bear ample testimony. In this connection I deem it prudent to give Mr. Webster's definition of the term statistics. He says it is "a collection of facts arranged and classified respecting the condition of the people in a State—their health, longevity, domestic economy, arts, property and political strength; their resources, the state of the country, etc.; or respecting any particular class of interests, especially those subjects which can be stated in numbers, or in tables of numbers, or in any tabular or classified arrangement."

Burns sung in a philosophical strain when he said:

"Oh wad some power the giftie gie us
To see oursel's as ithers see us;
It wad frae mony a blunder free us,
And foolish notion."

Statistics, more than all else beside, enable a State to see itself as it is. Figures are great truth tellers. They may be for a time misplaced, but even a cipher scorns to occupy a false position, and will eventually work itself into the right place, and in silent majority tell the truth. We are almost daily having crushing testimony of the power of figures, and we are also having cheering evidences of the lifting power of figures. I could weary your patience with illustrations, but such elucidations are not required—at least, not on this occasion. I have remarked that the State of Indiana has not been unmindful of the value of statistics. In the reports of the various heads of departments of the State government figures, tabulated statements, do more or less abound. In matters of finance, education, benevolent, penal and reformatory affairs, the attention of the people is at once attracted to the tabulated statements of taxation. Receipts and expenditures contain information of the highest value, and to the Department of Agriculture the people of the State look with special anxiety for facts which have a significance more vital in their influence than all others combined. But the State, not content with the reports of the various departments of the State government referred to,

saw proper to establish still another, the Department of Statistics, the purpose being to group together all the facts relating to the progress and prosperity of the State, in such form as to be of the greatest possible value to the people.

My experience leads to the conclusion, while the statutes providing for the collection of statistics seem to be sufficient to accomplish their intended purpose, that they require amendment in several regards. Statistics, to be valuable, should be full and accurate. Absolute exactness may not be possible, but their approximation to correctness should be so near as not to lead the student astray nor embarrass those who base calculations on particular items or sum totals. This severity of statement can not be made unless the laws are of such commanding force as to compel such assistance as the various county officers can furnish. When the law in these regards shall have undergone revision, I predict that the Department of Statistics, over which I have the honor to preside, will expand in importance, and will be found to supply a mass of valuable information which will be more and more appreciated by all classes of society who take any interest in the development of the resources of the State.

The State of Indiana has an area of 36,350 square miles, or 23,264,000 acres. Of this area there was in cultivation, during the current year, so far as I have been able to obtain information, 9,128,161 acres, or about 40 per cent. of the entire area. If we deduct for rivers, roads, cities, towns and villages 33 per cent. of this area we have 27 per cent., or about 6,000,000 acres, yet to be brought under cultivation; that is to say, when all the land in the State available for agricultural purposes is improved we could calculate upon an increase of 66 per cent. of our present agricultural products. In my returns in regard to the productive industries of our State, it must be understood that I propose only approximations, based upon such data as I have been able to secure for the Department of Statistics. But I am persuaded they approach so near a faithful exhibit of the situation, that they will supply a valuable basis of calculation in all departments of business.

Assuming that in the list of our productive industries agriculture stands at the head, I find that the product of cereals for 1883 stands as follows:

<i>Cereals.</i>	<i>Acres.</i>	<i>Bushels.</i>	<i>Value.</i>
Wheat	3,049,209	31,405,573	\$31,405,573
Corn	3,125,376	89,699,237	40,364,656
Oats	656,286	19,567,789	5,870,336
Barley	20,172	399,183	219,550
Rye	26,604	358,513	197,182
Buckwheat	4,669	39,459	31,667
Totals	6,882,316	141,469,754	\$78,088,964

These six principal cereal crops take about two-thirds of the entire area now under cultivation, and something over two-fifths of the entire available area of the State for agricultural purposes. In extending the statement relating to the agricultural products and industry of the State I have the following figures:

<i>Products.</i>	<i>Acres.</i>	<i>Quantity.</i>	<i>Value.</i>
Tobacco	13,092	7,706,110 pounds	\$770,611
Irish potatoes	87,100	8,353,412 bushels	2,506,023
Sweet potatoes	2,288	168,876 bushels	126,657
Flax straw	24,653	19,951 tons	59,793
Flax seed		156,181 bushels	218,653
Timothy hay	1,167,323	1,831,137 tons	10,986,282
Timothy seed		27,720 bushels	33,264
Clover hay	939,615	1,628,519 tons	10,585,373
Clover seed		85,995 bushels	429,975
Totals	2,234,071		\$25,717,171

The foregoing constitute the leading products of the soil, and in value give a grand total of \$103,806,135. But there are other products of the farm which may be stated as follows:

<i>Articles.</i>	<i>Quantity.</i>	<i>Value.</i>
Cider, gallons	1,745,267	\$174,526
Vinegar, gallons	654,663	81,832
Wine, gallons	49,068	49,068
Eggs, poultry and feathers		3,505,232
Butter, pounds	29,591,845	4,438,776
Cheese, pounds	912,746	91,274
Milk, gallons	130,303,785	4,999,944
Honey, pounds	798,368	159,673
Wool, pounds	4,947,083	989,416
Fatted hogs		7,507,986
Orchard products		2,500,000
Sorghum, maple sugar and molasses		1,523,194
Garden products		4,751,278
Mineral products (coal mines and stone quarries		3,888,418
Total		\$34,543,729

In regard to slaughtered animals, I have the following figures:

	<i>Number.</i>	<i>Value.</i>
Cattle	101,085	\$4,043,400
Hogs	1,165,296	13,983,552
Sheep	65,080	227,780
Total		\$18,254,732

Here we have the sum of \$156,604,596 representing the agricultural industries of the State with 33 per cent. of the available agricultural area of the State still to be brought under cultivation, and this 33 per cent., if under cultivation, assuming its productiveness to be equal to that already improved, would add 66 per cent. to the sum total of value equal to \$261,007,660 for the year.

The quarry industry of the State is steadily growing in importance. There are now 121 quarries in operation, employing 775 men, and the value of the product for 1883 approximates \$555,085.

The coal industry is of commanding importance. The area of the coal fields is given at 7,000 square miles, and the output for 1883 will reach 2,000,000 tons, which, at an average of \$1.66 $\frac{2}{3}$ per ton at the mines, gives a total of \$3,333,333.

The manufacturing industries of the State have assumed gratifying proportions. I give them as follows:

	<i>Value of Manufacturing Product.</i>
1. Agricultural implements	\$2,830,282
2. Blacksmithing	2,440,616
3. Boots and shoes	1,456,059
4. Breweries and malt houses	2,748,853
5. Brick manufactories	2,170,277
6. Carriages and buggies	2,008,793
7. Coopershops	1,469,779
8. Drain tile	1,133,515
9. Distilleries	2,053,078
10. Flouring and grist mills	27,758,131
11. Foundries	4,902,554
12. Furniture Factories	6,929,772
13. Marble shops	862,706
14. Photographs	339,727
15. Harness and saddles	1,512,116
16. Planing and saw mills, combined	4,688,254
17. Saw mills	10,332,976
18. Stave and heading factories	4,970,200
19. Wagon factories and shops	3,143,857
20. Woolen mills	2,458,100
21. Cigar factories	1,260,630
22. Merchant tailors	1,208,240
23. Miscellaneous manufactories	72,148,767
Total	\$160,827,282

Recapitulated, we have a total value of our productive industries for 1883 of \$294,479,838, as follows:

Agricultural, including slaughtered animals	\$156,604,596
Manufactories	160,827,282
Total	\$317,431,878

The subject opens up an inviting field in which to foreshadow probabilities and possibilities, but having given statements based upon such data as I had in my possession, I leave to others the more agreeable duty of determining the position our State shall occupy in the near future by virtue of the energy and intelligence of her population and the development of her undeveloped resources.

ANCIENT AND MODERN AGRICULTURE.

BY R. T. BROWN.

The art of tilling the soil for the production of food is as old as human civilization. The discovery of the nutritious qualities of the grains, fruits, and vegetables as they grew wild, must have preceded the cultivation of them. The fertile valleys of the Nile, the Euphrates and the Ho-ang-ho must have abounded in these spontaneous products, and population would be invited by this natural supply, till its density would demand an increase of production, which would naturally lead to cultivation. In conformity with this hypothesis, we find that Egypt, Chaldea, and China each claim the introduction of the agricultural art. It is possible that cultivation of the soil for the production of crops was practiced in each of these countries without the knowledge of the others; but the similarity of the ancient processes and implements strongly suggests a common origin, most probably that detailed in the ancient Hebrew narrative.

It is pretty certain, however, that the nations on the shores of the Mediterranean sea, Asiatic, African, and European, borrowed the art of farming from Egypt. Hesiod describes the art of cultivation in Greece, 1000 B. C., as being in quite an advanced State. They used a plow with share, beam and handles, though the construction was evidently very rude. To some extent they used animal power—oxen chiefly—in cultivation; and paid much attention to the care of sheep, swine, and poultry. But Greece was mountainous, rocky, and in no respect favorable to cultivation. Pliny says that an ancient Hellenistic king, Augeas by name, taught the Greeks the use of manures, as the use of these in Egypt was superseded by the sediments from the overflow of the Nile. But the Greeks conducted their agriculture chiefly by the manual labor of slaves. They understood drainage, and Xenophon says that they often made out of swamps and morasses their most fertile fields.

The early Romans had a high appreciation of agricultural pursuits, and hence we find agrarian laws in their early legislation, assigning a homestead to every citizen. An ancient Roman orator is represented as saying that, "He is not to be counted a good citizen, but rather a dangerous man to the state, who can not content himself with *seven* acres of land." (The Roman acre was 130 square rods.) Later agrarian laws permitted the holding of 50 acres, and finally of 500 acres. But these extensions added fuel to the fierce strife between the patricians and plebians. After the last Punic war, the Roman Senate ordered the translation into Latin of 28 volumes of Mago, a learned Carthaginian, on the subject of agriculture. In the latter days of the republic and the first century of the empire, numerous books on farming were written by Roman authors. Of these, the works of Cato, Varro, Virgil, Columella, Pliny, and Palladius have come down to us. They

show, in general, a good practical knowledge of the art of farming with the tools and implements at their command. The Romans improved the plow of the Egyptians and Greeks, by adding a mould-board, and sometimes two, for turning a double furrow. These were drawn by oxen, and were used only for breaking the ground. All after cultivation was done by hand with the spade, hoe, and rake. Manures were saved with care and applied judiciously, and good crops were the results. But after the imperial conquests had introduced foreign grain as the annual tribute of submissive nations, agriculture rapidly declined in Italy; and in its decline the doom of the empire was written, for no nation can long survive its ability to feed its people on the products of its own industry.

The Hebrews cultivated the art of farming from an early period. It is generally asserted that they acquired the art during their sojourn in Egypt, but incidental allusions to farm scenes furnish evidence of cultivation during the pastoral age of the patriarchs. We need mention but one—the dream of Joseph concerning the sheaves. Gen. xxxvii : 7.

But the subsequent history of this remarkable people shows their devotion to the cultivation of the soil, by their ability to support so large a population on so small a territory. But of the details of their agricultural methods we know almost nothing. The same may be said of the millions that were supported from the soil in Chaldea, India, and China during these long ages. That they farmed successfully, though perhaps rudely, is fairly inferred from the heavy population that was maintained; but, that little progress was made, either in the processes of farming, or in the implements, is certain, as no traces remain of such improvements.

With the decline of the Roman empire, agriculture lost the high and honorable position which it had held during the centuries of the republic; and when the northern barbarians became masters of Italy, they substituted their rude methods of farming for the more intelligent processes of Virgil, Columella and Pliny. Art and literature hardly lost more in the fall of Rome than did agriculture. For a period of nearly a thousand years, we are in utter darkness with regard to the condition of farming throughout the civilized world, with a solitary exception. In the eighth century (750) the Moors established themselves in Spain, and brought with them improved farm tools and advanced methods of cultivation. They drained the marshes and irrigated the sandy plains by works of astonishing skill, and for more than three hundred years they made Grenada the garden of the world. It is said that the surplus products of that province reached the sum of \$30,000,000 annually—a sum equal to three times that amount at the present value of our currency. But the Moors left to us no substantial improvements, either in methods nor in implements of culture. Their success was achieved by indomitable industry and perseverance.

Early in the sixteenth century Belgium and Holland began to wake up to the importance of an improved and more extended agriculture. They introduced new crops, and paid especial attention to cultivation of garden vegetables. They introduced from Italy and the Lavant, cabbages, beets, asparagus, beans, peas, etc. Catherine, the Queen of Henry VIII, was obliged to send to Holland for the vegetables she was in the habit of using on her table.

About the middle of the sixteenth century, Sir Anthony Fitzherbert published

his "Boke of Husbandrie"—the first work on farming ever published in England. About 1575 Thomas Tussar published a rambling sort of poem under the title of "Five Hundred Points of Good Husbandry." These works merely detailed the processes and methods then in use, many of which betray an absurd superstition, but they are interspersed with maxims that show a habit of careful observation. For example, Fitzherbert says: "A housbande can not thryve by his corne without cattell, nor by his cattell without corne, and shepe, in myne opinion, is the most profitable cattell that any man can have."

During the seventeenth century but little progress was made by the English, though Barnaby Googe, Hugh Platte, Walter Blythe and Richard Western wrote books on farming, the last of which was a sketch of the improved methods used in Flanders and Holland. It was in this century that clover was introduced into England and turnips became a field crop.

But the first real advance towards the improved methods of modern agriculture was in the experiments and new modes of cultivation introduced by Jathro Tull, whose labors extended through the first quarter of the eighteenth century. His introduction of new implements of farming and his experimental inquiries into the causes and conditions of the fertility of the soil, and the action of manures in increasing it, fairly entitles him to a high rank among the early patrons of agriculture. Though his theory of the nutrition of plants was false, yet the practice he instituted upon it was correct. His favorite hobby was a fine soil; he therefore made deep tillage and a fine pulverization of the soil the pivot of his system, and to assist in this, he called in the aid of potash, ammonia and lime, and to secure a uniform moisture in the soil, he used common salt. Tull invented and introduced a seed drill for planting all grain crops; he also attempted to supercede the flail by a thrashing machine of his invention, but was prevented by the jealousy of the laborers. But his labors woke up a spirit of investigation and thought on field topics, and prepared the way for Arthur Young, who was really the harbinger of modern, scientific agriculture. His labors cover the period between 1780 and 1810, in which time he traveled extensively over Europe, observed the methods of farming in different countries and the effect of each on crops. He visited France and acquainted himself with the wonderful discoveries of Lavoisier, Barthollet and Fourcroy in the field of chemistry, the principles of which he assiduously applied to the examination of soils and manures, and to the growth of plants. He made a special and careful examination of the effect of ammonia on vegetable growth, and divided all manures into ammoniacal and mineral. He first announced the limitation of vegetable nutrition to substances in either a liquid or gaseous form. About the year 1800, Young collected the most important of his works, and published them under the title of "Annals of Agriculture." A more complete collection of the works of Young and other pioneer agriculturalists of this period was made and published in 1807 by R. W. Dickson, under the title of "A Complete System of Improved Agriculture." This important work was translated into several of the European languages, and gave an impulse to better farming all over the continent.

At the instigation of Sir John Sinclair, of England, the Royal Agricultural Society was organized by act of Parlaiment in 1793. This Board, in 1802, invited

Sir Humphrey Davy to deliver, before them, a course of lectures on the chemistry of soils and the laws of vegetable growth. This invitation he accepted, and repeated his course annually, closing in 1812. In the following year he published a condensed synopsis of these lectures, with the modest title of "Elements of Agriculture." This was the first really scientific work ever published on the art of farming, and marks the beginning of the nineteenth century as the birth of modern agriculture. This work was not exhaustive, but it was marvelously suggestive.

It was translated in German and French, and formed the basis on which Bous-singault in France, Sprengel in Sweden, and Liebig in Germany, proceeded with their laborious and successful investigations into the chemical conditions on which the largest production of crops depends. In 1806 Davy made a careful analysis of a sample of Peruvian guano that had been sent to the Royal Board the previous year. He also made experiments with it on the growth of wheat and barley which fully confirmed his analysis as to its value as a fertilizer. In the same year Fourcroy and Vanquelin published a similar analysis made by them in Paris. As a result, the year 1807, the most notable of this century, brought the introduction of guano to the farmers of Europe, by which their fields, exhausted by the cultivation of a thousand years, were brought back almost to the condition of the virgin soil. Yet there were some remarkable oversights in the work of Davy and his coadjutors. He recommends crushed bones as a manure on account of the decomposable animal matter which they contained, overlooking entirely the value of their phosphates, in which, as is now well known, their excellency lies. But in discussing the causes which led to the rapid development of agriculture, both as a science and as an art, we must not overlook the influence of Napoeleon Bonaparte in the early years of this century. He gave the power of his empire to the patronage of science and the useful arts.

While the researches in agricultural chemistry were thus successfully prosecuted, both in England and on the continent, with the most striking practical results, De Candolle, in Switzerland, took up another line of the work—the physiology of vegetable growth—a branch of the science without a knowledge of which agriculture must always be lame. His labors, seconded by the research of American and English botanists, have well brought up the science of plant life and growth to its present status. In 1840 Baron Liebig produced his great work dedicated to the British Agricultural Association, with the title of "Chemistry in Its Application to Agriculture and Physiology." He subsequently produced several works of elaborate research on branches of science connected with agriculture and domestic economy.

Turning to the United States, we find here a large and comparatively intelligent agricultural population with views well advanced in all matters of practical farming, yet no great luminary has arisen to enlighten our farmers by the brilliancy of his discoveries. Here, as in other matters, our light is a diffused light—a galaxy of stars rather than one over-powering luminary; and yet our progress in the advancement of agricultural methods has been quite as rapid as could have been reasonably expected. The man who looks over our fields to-day, and remembers the maxims and methods of farming fifty years ago, can hardly fail to be astonished.

At that period the work of the farm, in many cases at least, proceeded by fixed rules and maxims which in nowise grew out of the reason of things, and were therefore as unchangeable as the laws of the Medes and Persians. The corn must be planted in the new of the moon in May, and the wheat must be sown in the light of the September moon; flax must be sown on Good Friday, and it was the only Friday in the year on which any farm work could be safely begun. Similar rules were adapted to almost everything done on the farm, and though they were observed with almost religious fidelity, yet nobody knew why he observed them. How strangely this contrasts with present farm methods. Now, farmers plant their crops when the ground is in proper condition and well prepared, and they can generally tell you why they plant, then and there. The modern farmer cuts his wheat, mows his grass, gathers his corn and digs his potatoes when each is in the proper condition, without inquiring in what sign of the zodiac the moon may happen to be just at that time. In a few remote corners and obscure spots some of these superstitions still linger, but our public schools and the general diffusion of farm literature will soon make them things of the past.

But correct knowledge of the relation of crops to soil, moisture, heat and light, with correct methods of cultivation, however important, could not have given agriculture the advanced position it occupies to-day without the aid of inventive genius and mechanical skill. The glory of modern farming in this age and country, is the small amount of hand labor we employ, compared with the results we obtain. Time would fail us to detail the wonderful improvements in farm tools and appliances of every description. If we compare the plow of fifty years ago and the work it did in its best estate, with the sulky our boys ride now-a-days, and the deep, clean cut furrow it turns; compare the sickle with which we once followed the "leader" in the harvest field, with a self-binder; compare the flail which we once swung with a dexterity that we were proud of, with a modern separator driven by steam power, and you have a good idea of what agriculture owes to mechanical genius and skill.

One of the principal advantages of modern agriculture is the extent to which it is able to dispense with hand labor by the substitution of animal power or the inanimate forces of nature. Under the influence of this substitution the spinning wheel and hand loom have left the farm-house, and the rake and hoe hang in the tool house, to be used only in the garden. In fact, the manual labor that remains is educated labor—for a rude, untrained mind can not manage modern farm machinery. With the necessary mental training and intelligence, farm work becomes professional labor—the application of scientific principles to grand results. It loses its menial character and becomes dignified, as is the labor of other professions.

But the value of these improvements must be tested by their results. What are its effects on the production of the soil? is the crucial question. In the first place it enables the farmer to cultivate double the number of acres, and to cultivate them better, with the same force of farm hands. In the second place, the modern mode of farming greatly augments the production per acre, and generally improves the quality of the products. In the days of Queen Elizabeth the chronicles of the realm give the yield of wheat per acre at five bushels; in 1871 it was re-

ported at thirty bushels per acre. In 1851, English authorities give the whole annual increase of their grain crop, in the first half of this century, as equal to the support of an increased population of 7,000,000; and this can be referred to no other cause than the improvements in the methods of cultivation. In the United States the abundance of land and the scarcity of labor have prevented the strict application of the principles of advanced agriculture, so that the increase of products has not been so distinctly marked as in Europe, yet the influence of it is clearly visible. In 1840, the average production of corn per acre, in the six New England States, is reported to be nearly twenty bushels (19.9); but last year's crop gives an average of 33.1 bushels. This increase per acre can be referred to no other cause than improved methods of farming. In the West we cultivate a virgin soil of great natural fertility, and as land is cheaper than labor, we have preferred to cultivate much rather than to cultivate thoroughly; yet in many of our crops we see an encouraging increase in the average per acre. This is especially true of wheat in Indiana, if we compare the last twenty years with the preceding two decades. In the South, where modern methods of farming have been but recently introduced, and where farmers are slow in adopting them, the figures of production per acre tell the result. In Georgia the last corn crop is 8.7 bushels per acre, while that of New Hampshire is 36 bushels, or more than quadruple that of Georgia, with soil and climate both in favor of the Southern competitor.

With the solid basis of chemical truth, which is immutable, there is no reason why agriculture, as an art, should not improve indefinitely, and farming take high rank among intelligent and enlightened pursuits.

DOES FARMING PAY IN INDIANA?—IF NOT, WHY NOT?*

BY HON. R. M. LOCKHART, OF DEKALB COUNTY.

I have chosen the above subject for the foundation of a short address, not expecting to be able to discuss it to any great extent, as time will not permit.

Does farming pay in Indiana? Webster defines farming as the cultivation of lands. It is a question not disputed by any one that is thoroughly acquainted throughout the entire State of Indiana, that no State in this Union contains a larger area of good farming land than is contained in this State, or one better calculated for producing the cereal crops. We have a diversified soil, out of which

*An address delivered before the State and Delegate Boards of Agriculture at their annual meeting January 8, 1884.

may be grown all of the leading grain crops that can be grown in any of the other States. It is a mistaken idea with many men that attempt farming for a business, that all kinds of grain, or root crops, can be grown successfully on the same soil. Any one, to be a successful farmer, should know of what the soil he is attempting to cultivate consists in order to determine what crops are the most profitable for him to raise. I presume there is not one farmer out of every fifty that is trying to make a living by the cultivation of land that has prepared himself by education as to be able to analyze his soil, to determine what are the component parts, and thereby ascertain what is needed to be added in order to make it produce in large quantities such crops as he may wish to raise. In some of the older States great advances have been made within the last half century in the cultivation of their farms, and it has been thoroughly demonstrated that by the use of fertilizers added to the natural soil it has been made to produce double, and even thrifble, the amount that could be raised on the land before such application. In many parts of the country can be found men who make it a business to examine lands and chemically analyze the soils, and determine for the owners what ingredients are necessary to be added in order to bring up the soils to a high state of cultivation.

But some farmers can be found who will say that it costs too much to go to all this trouble; say they can not afford it, and are willing to go on with their farming from year to year as their old fathers have done before them, perhaps, for the last fifty years, never stopping to think that perhaps they might have on their own lands material that, if rightly applied, would add largely to the productiveness of their farms. At the annual meeting in January, 1882, I well remember that Mr. W. B. Seward, a member of the State Board of Agriculture, made some inquiries of the members of the Delegate Board about the use of lime on the lands of our State, saying that they had large quantities of limestone in his county (Monroe). Some one asked him how it could be used to advantage. If I am not mistaken, he said, it could be pounded up and pulverized in suitable shape to go into the land. I had the pleasure, last May, of spending a day with a Pennsylvania farmer who now lives on the old farm where he was born and raised, but for many years lived in other parts of the State. I had known him for many years, and was aware of the fact that he had again gone back to the old farm on the death of his father, and had made great changes on it by getting it in condition to raise large crops of grain each year. I asked him how he had managed it to make the old farm so productive, as it was considered rather a poor farm during his father's life time. He told me that he had made the discovery that the great amount of limestones scattered over the fields, that were always an annoyance to his father, could be made a mine of wealth to him. He had gone to work in the summer time to collect the stone in piles, and when winter came, he hauled them to suitable places and burnt them into lime, and drew that onto the fields, taking them one at a time, and spreading the lime evenly over, so that every part of it was covered. He said he had put as high as 200 bushels of slacked lime to a single acre, costing him, perhaps, as much as \$25 an acre. He had found that in that way his fields were made to produce more than twice as much as they did before being limed, and it would not be necessary to renew the liming for at least ten to fifteen years; and although lands

were not selling as high as they were some years ago, his lands, said to be worth \$90 an acre when he took them, could now be sold readily at \$150 per acre.

There are thousands of acres of farming lands in Indiana that are covered with or underlaid with limestone, that might be made to produce double the amount of grain per acre, if treated in a like manner.

Does farming pay in Indiana? My answer is, yes; if conducted on business principles. There is perhaps no profession in our land that number among its professors so many humbugs. It seems as though there was a general understanding that if a man went into any other kind of business, and made a failure of it, he could go to farming and make a success of that. There is where the mistake comes in.

I take the ground that to make farming pay, the parties who engage in it must be thoroughly educated to the work.

In this day and age of the world, with all the vast improvements that have been made in farm machinery, which enables the farmer to plant, cultivate and harvest his crop so much more speedily than could be done twenty to fifty years ago, much more time is given him to look after all the minor details of successful farm work. If he expects to make a success in farming, there are many things to be considered. He must first prepare his ground in a proper manner. How many farmers can be seen every spring plowing up fields for oats and corn crops, with water following them in the furrows, showing very conclusively that they have neglected one of the most important principles of farming—that is, thorough drainage? The result of this is to make almost, if not altogether, twice the amount of labor to get their fields in condition for cultivation, and generally the result is a very poor crop. I am glad to see the very great interest that is being taken in the subject of drainage in this State, and thousands of acres of lands are being reclaimed from the swamps each year which, in the early settlement of the State, were looked upon as almost worthless, and which will now produce as much, if not more, than the very best of the up-lands. With a soil not surpassed by any other State in the Union, and located as we are, geographically, with all the important lines of railroads crossing our State east and west, giving to our farmers every facility for sending the products of their farms to the best markets of the world, I say again, farming in Indiana does pay. But some good men differ from me, and say it will not pay. Why not? I answer, it is because those who fail in the business, have not gone to work at it in a business way.

They have undertaken a business that they do not understand, and go to work at everything in a hap-hazard way and trust to luck to come out all right at the end of the year. I think the most successful farmers we have in our State are those who cultivate their farms with a rotation of crops, and what is termed diversified farming. I recently visited a farmer in the State of Missouri, who, I am convinced, is making as much money off of his farm as any one I have met for many years. In going with me on a business trip across the country a distance of twenty miles he gave me a history of his work since he went to that State, and in passing by a number of farms, the original owners of which he had been acquainted with, but who had been compelled to give up their farms for the reasons named by him. One in particular that he pointed out, saying: "That man came

to this State the same year I did. He had money enough to pay for his farm—320 acres—erect his building and buy his teams. He went to work to break up the farm and plant corn and sow oats. When his crops were gathered at the end of the season he drew his corn and oats on wagons, either to Carrollton on the south or Chillicothe on the north, a distance of twenty miles, and sold. This course he followed from year to year, and each year finding himself growing poorer, until he finally had to place mortgages on his farm for money to help him out, until the debt became so great that he had to give up his farm to pay the indebtedness. Other farmers pursuing the same course met with similar experiences."

My friend said that the plan he adopted was to commence the second year of his farming by purchasing a few calves to eat his spare pasture, and enough hogs to eat his corn crop. The third year he came into my own section of country and bought one hundred calves and shipped them to his farm, and since that time has managed to keep enough stock on the farm to eat up all the corn and corn fodder, and hay and oats, that he could raise, and when his stock was in condition to market he could drive them there on foot. The result has been that from a start ten years ago on a farm of 220 acres, bought for \$6,000, he now owns in a solid body twelve hundred acres, all paid for, and enough stock on hand this winter to bring him, if sold, at least \$10,000.

I believe the principle on which he is working is the correct one—to keep enough stock on the farm to eat the surplus feed instead of carting it off on wagons long distances to market. I notice in my rambling over the country many other reasons why some farmers do not make their business pay them, one of which I will speak of. It is the careless manner in which many of them take care of their farming tools.

I called on a farmer two years ago to try to sell him a farm implement, which I was engaged in manufacturing. He said he would like to have one, but he did not feel able to buy one then. Said he, "I was figuring up a few days since how much I had invested in machinery and farming tools;" and—would you believe it?—when I tell you that it amounts to over \$1,700 (that, of course, included a threshing machine and clover huller)—all of that on a farm of 160 acres; and when I tell you, gentlemen, that every dollar's worth of that machinery was kept out of doors, not even a shed to cover his wagon or carriage, you will not wonder when I tell you that the sheriff of his county is going to hold a matinee at his barn before next spring. It is safe to say that the life of farm implements left in the furrows, in barn yards and fence corners, will not be more than eight or ten years, and the farmers who treat their machinery in that way are those that do not make farming pay.

In conclusion, let me say to the farmers of Indiana: If you wish to see farming pay in every case in Indiana educate your sons and daughters to that avocation. Indiana has to-day one of the grandest schools for that purpose that can be found in any State in the Union. Indiana farmers should feel proud of their college at Lafayette, Ind.

I think I can say to-day, without fear of successful contradiction, that Purdue College has at its head a man as well qualified to give instruction to the sons and daughters of Indiana as any other institution of learning in the United States; and

he is ably supported in all of its departments by careful and competent instructors. It is the duty of every farmer in the State to aid in making this what it was originally intended for—an institution of learning particularly for the sons and daughters of Indiana farmers.

THE COMPLETE HOME.

BY MRS. JOHN COMMONS, OF WINCHESTER, IND.

It is well that many essayists have taken in hand to set in order the importance of the "True Home." At first glance it might seem irrelevant, but in reality it is the most appropriate application that can be made.

The home is the heaven-ordained institution; it is the foundation of all others, which are subordinate to this one, and were conceived and ordained as assistants to the perfection of this symbol on earth of the final home prepared for those made worthy here below. From it proceeds blessings and cursings to all these according to the measure meted out at this fountain-head of character. And as man is the central figure in the home, it is evident that any and every thing besides should contribute to the edification of this crowning work of the creator, to the use of whom was submitted the earth and all that pertains to it, when perceived to be good.

The only condition was that of obedience to a restriction implying that there was something higher than the eating of fruit and beholding the beauties of nature. A restriction pointing to the spiritual part, which shadows the image in which he was made, and to which all else, including his own physical being, was to minister.

The failure to comply with this condition was followed by that other command to wrestle with vitiated nature, with the promise of requisite assistance in the restoration of both to their pristine paradise.

The home, then, is not merely an inclosure of brick and mortar, which, if well furnished, is hermetically sealed from the sight of children and from the use of adults "till company comes;" a place where children are fed and chastised, and where the husband and father takes his hasty meals, and, in the interim of business, goes out "to see a man," and from which the boys seek the first opportunity of escaping; a place never echoing with words of cheer from its natural head; from which the helpmeet's soothing smile is utterly excluded, amid the hurry and bustle for the accumulation of food and raiment or the amassing of wealth.

It were better that each successive home had been patterned from the one in the Garden, in the east of Eden. There, were our first parents to rear their offspring where "He hath made everything beautiful in its time," the planting of the hand divine; the contemplation of which was to lead from nature to nature's God; for the idea of the beautiful is developed by the observation of the unfolding bud and freshly bloomed flower. The truly beautiful is the pure and the true, and, by an

easy transition, that which is requisite to the flower for its highest perfection in loveliness is transferred to the sentient being, and the necessity for the cultivation of these graces is felt a thing to be desired, a joy as well as a duty. He "who spake as never man spake" enforced his most impressive lessons by reference to the exhaustless treasures of nature's storehouse, as God's care and love by the lily of the field, frailty by the withered grass, external show without real worth by the green but fruitless fig tree. The certain termination of life, "we all do fade as a leaf." And when the wise man would represent the Holy One as beautiful in the extreme he designates him as the rose of Sharon. For durability and firmness the cedars of Lebanon are appealed to. For blessings the olive and vine are called to testify. The leeks and cucumbers, as well as the overflowing corn bins, made Egypt desirable for habitation. So that the horticulturist has to do with that which ministers to all needs of mankind; the appetite which nourishes him and the beautiful which pleases him. The former develops and sustains the physical being while the latter lifts the spiritual being up through all gradations, till the infinite architect is beheld by the multitudes, who say: "Holy, holy is the Lamb," beneath the shadow of the tree of life, watered by the river that flows hard by the throne of God. Nature and revelation unitedly wreath garlands with which to crown the highest achievements, cast at the feet of supreme loveliness and purity. Shall not man follow the teachings, and by caressing mother earth, cause to spring up around our hearths and homes these unsurpassed sources of highest culture.

Nature has ever responded to the courting of her admirers in lavishing inimitable decorations. When Babylon's renowned king brought his beautiful bride from a land of fruits and flowers to the marshes of the Euphrates, for her he built those hanging gardens which are numbered among the seven wonders of the world. In all old countries, the homestead, with its grounds and parks, is considered the richest legacy to the most favored heir. One supreme object in all this is the strengthening of the attachment for home, than which, in this country, there is no more importunate demand and no more potent and conservative influence.

The ever restless and grasping American ignores the small things which make home a beauty and a joy forever; and the first intimation of independent thought on the part of the child is manifested in a lack of interest, which develops into positive dislike, and that into escape from home at an inconveniently early age, with all the possibilities of such a move.

Then make home the chiefest among ten thousand. It will not suffice to sing of "Home, sweet home, there's no spot like home," to the average child in the majority of homes with no corresponding surroundings. The song and sight must coincide to thrill the young heart with lasting impressions. It is not enough that the beautiful is seen. Each member of the family must contribute to that beauty. Give each child something to do. Commence when very young. A very small child will readily discern between weeds and plants. The flower, from its own morning glory, will have the brightest hue; the flavor of the strawberry from its own lone hill be the sweetest to the young amateur. Increase these small beginnings as the capacity of the child increases. Parcel the plats among the children; never more than is kept in the best of order. It is not the extent, but the perfection with which it is done that educates the child. Ownership in the soil and the

products thereof are the strongest attachments of place in man or child. The late Prince Albert allotted ground to each of his children, the products of which were under their own control. He was an enthusiastic horticulturist, and enlisted his children in the same. I know a little boy who cultivated parsnips and took them to market and realized \$4. He was as enthusiastic over his growing crop and the sum realized as the extensive farmer over his broad acres and their profits.

A style which can not be too highly commended prevails to a considerable extent, that of decorating inside with growing plants; but the children here also should be required to assist, as their interest will be in proportion to their efforts, if these efforts are not made a task but a pleasure. Have an apartment thus decorated by the assistance of the children that is not too nice for the boys. Care for the carpet has alienated many a boy from the home and driven him to haunts of vice fitted up to attract.

This much for the boy; but who is to make the home thus attractive? Methinks I hear you say the mother. She is the queen there, and she should always have a kind and soothing word for the wayward child and a smile for the tired husband, and thus the home shall be the earnest of that one above.

This is, without doubt, all true. Wise men have discoursed long and loud, and poets have sung of her peerless power, and it is incorporated into the most common sayings of the most common folks. The divine echoes it from the pulpit, and it furnishes the most eloquent flights of oratory from the platform, and we all acquiesce in the sentiment, believing that "she who rocks the cradle rules the world." This naturally leads to the consideration of her surroundings, for it seems to be overlooked that she is of like passions with others; subject to weariness and exhaustion, and consequent dejection and irritability. Perennial sunshine is expected of the wife and mother, she of nerves worse contorted than the premature furrows carved on that once placid brow by the never-ceasing round of dishcloth and frying-pan, clamorous dear little ones, indifferent husband, exacting society, with all the interstices of time filled in with a stitch here and a button there, a garment to be made, another to be mended, a stocking to knit, another to darn, and a host of small attentions too numerous to mention, but which, like the little drops of water, aggregating the mighty ocean which swallows up all these graces so essential to the complete home--of such an one, I say, it is expected that she shall shed uninterrupted radiance in the home, making it but a stepping-stone to the paradise of God.

You say, then, in the ordinary walks of life ideal home can never be realized. Be not hasty. Some things seemingly most difficult are the most simple. An eminent physician has said, "Let girls be trained from infancy to outdoor life, for then they get more and better air for their lungs, and more sunshine, and then healthy blood courses their veins, developing muscle and brain. Health and happiness go hand in hand." It is said that "In ancient Greece, where the most beautiful women lived, the girls were trained to outdoor life. Their washing, ironing, cookery and gymnastics were mainly out-of-doors. Their lives, during this period of Grecian history, were much purer and nobler than later on, when all this was changed."

It follows that when the multiplied cares of the home devolve upon the girl, transformed into the central figure of the home, that like conditions are absolutely

necessary to continue and sustain what has been secured, and so, by the logic of events, we come to the duty of the head of the family to make the surroundings such that the busy housewife can easily step from the kitchen to the garden of fruits and flowers, and, by a touch here, and a suggestion there, add grace and beauty to those adornings, and make perpetual the bloom upon that cheek that won his manly heart, and ripen that gleeful laughter into a rich smile of appreciation for him and of approbation for the pledges of their love.

All this need not be expensive nor take much time. The men and boys can easily spade or prune the few minutes while waiting for meals, rather than in impatience and the use of hurry words to the already jaded maids of all work, the mother and sisters, with whom they take their thankless meals.

The alert husband will discern many a moment, while the team is feeding or the implements in mending, that, applied in this way, would make his home bloom and blossom as the rose. The common sweet pea and flowering bean vie with the clematis as climbers. The sweet potatoe vine trains as gracefully around the bracket as does the winter ivy or the Madeira vine. The blooming chrysanthemum as proudly defies the outside blasts as does the geranium. The old-fashioned flowers, hardy and of easy culture, can supercede the noisome dog-fennels and the noxious rag-weed in every nook and corner where they now hold undisputed sway, and climb over many an unsightly fence and deadened tree. The sunflower and hollyhock can conceal the rough siding of old buildings, and the trumpet creeper and honeysuckle can cover a multitude of defects, and thus the most unseemly parts will become the most seemly.

Now, to sum it all up, these surroundings, which make home a thing to be desired by men and boys, need not add to the labor, many of the women and girls, for such necessary attention can take the place of much cookery that only panders to gormandizing. The plain and easily-prepared food is more in keeping with the food for the soul furnished in all these surroundings.

And it is wonderful how much rest comes of a few minutes' admiration of growing plants, tastefully arranged. It is also philosophical, for when the mind is so occupied that bodily ailments are forgotten, they disappear. When they receive no attention they slip away as would a guest at our house, under the same treatment.

This plea for surroundings that force women from close apartments to outside air and sunshine is in behalf of health and consequent cheerfulness which is the essential of the ideal home, thus made real and given a local habitation and a name endeared and cherished by its happy inmates, and around which all linger and grieve to part from, and which fond recollection brings to view when time and space lie between the honored and true who have gone out in turn to repeat these fountains of blessing.

In the language of another, "It is good to be *en rapport* with nature, to search out her fastnesses, to climb nearer the stars, to listen to the mystical whisper of her leaves, the sighing of her breezes, the murmur of her brooks. One learns to love through her mysteries, not only herself, but her architect, and the sweet faith and fancies born of her companionship will be sources of health, physical, mental, moral and spiritual forever."

REPORTS

OF

County and District Agricultural Societies,

EMBRACING THE

CONDITION OF AGRICULTURE,

FOR THE YEAR 1883.

FOLLOWED BY A CONDENSED FINANCIAL EXHIBIT AND NUMBER OF ENTRIES IN
TABLE FORM OF ALL THE AGRICULTURAL SOCIETIES REPORTED, WITH A
LIST OF THE NAMES AND ADDRESSES OF THE PRINCIPAL OFFI-
CERS OF EACH, AND DESCRIPTION OF EACH COUNTY.

BARTHOLOMEW COUNTY.

The Bartholomew Agricultural Society advertised to hold their regular annual fair for 1883 on August 27th, 28th, 29th, 30th, 31st, and September 1st, but in consideration of overtures made them by the Bartholomew County Industrial and Agricultural Association, an embryo organization of our county, whose existence is on paper only, we consented to lease our grounds to them for the dates advertised, and hold no fair ourselves, hoping by this method to harmonize the different factions and unite the opposing elements for the promotion and advancement of the agricultural interests and general prosperity of our county. For this reason I have no report in detail to make, but, in behalf of our society, I beg to state *that we have an existence of twenty-seven years.* We have beautiful grounds, contiguous to Columbus, with fine shade trees, nice buildings, plenty of water, a superb race course, and all the appurtenances and conveniences for a prosperous society. Our capital stock is

\$12,000, all paid in. We owe nothing. The stock is held by a few persons who have the energy and disposition to give a good fair every year, the nerve to advertise, that they will pay their premiums in full, and the ability to do what they advertise. Our stock books are open to subscribers, and we will part with as little or as much as the people desire to take.

Until the present officers succeeded to the management the affairs of the society were in bad condition. It was oppressed with debt and covered with mortgages. Its members were at variance, and dissensions were rife.

Finally, by order of court, the grounds were sold by the sheriff, and bid in by an enterprising and wealthy farmer, whose understood object was to utilize them for resident purposes. On the last day of the right of redemption twenty-eight of the members advanced the money for that purpose. Subsequently the greater part of these members sold out to the others, the total cost to the latter being \$3,100, with a judgment of \$700 in favor of the society, pending in the Supreme Court, afterwards secured. This, at face value, made the assets \$3,800. At the inceptive meeting of the B., C., I. & A. Association (since organized) our society offered them our name, our grounds and assets for \$4,000, deferred payments, which was refused. We have since spent \$8,000 in improving the grounds.

In conclusion, I wish to say that in our article of agreement, by which we permitted the new society to occupy our grounds on our dates in 1883, it is stipulated that by so doing we relinquish no right or franchise which we enjoy under the laws of the State or from the State Board of Agriculture. Among these are included the right of representation at the meetings of the State Board, proceeds of show licenses and exemption from taxation.

RICHARD THOMAS, Secretary B. C. A. Society.

BARTHOLOMEW COUNTY.

Bartholomew county is neither the largest nor the smallest county in the State, yet, it may justly claim to be one of the best. It has 240,746 acres of land within its limits, almost any one of which—excepting creek and river channels—will yield a liberal reward for the labors of the careful husbandman. It has a great diversity of soil, grading from that of ordinary fertility to that of as fine land as there is in the State. A part of the western tier of townships, adjoining Brown county, is somewhat broken and hilly. Its fertility is not of the highest order, yet the class of people who own it are careful, industrious and frugal farmers, who make the most out of the soil. This year there were quite a number of cases in which the yield of wheat was worth more than the price of the land on which it grew.

It is a good locality for fruit. There are many peach orchards of large size, and, in bearing years, the home demand is supplied, and large shipments are made besides. The seedlings are usually sold at from 30c to 60c, while the budded fruit brings prices ranging from \$1 to \$2. There are excellent apple orchards, also; the trees appearing to be more hardy than they are on the level lands. The eastern

part of the county is generally level, and has a soil which is excellent for either wheat or corn. There are some as good farms on Little Haw Creek, Duck Creek, Clifty and Sand Creek, as found anywhere in the county, while, at some distance from these creeks, in many places are the "slashes."

The soil is black, rich and wet. With a sufficiency of underdrains its fertility is available and almost exhaustless, becoming the most reliable land for cultivation. Driftwood enters from the north, about five miles from the western boundary, and pursues a course south southeast, passing out near the middle of the southern boundary.

This valley is very rich, but many of the farms next to the river are subject to overflow. The owners are always sure of a large yield of corn, if it is not drowned or carried away by the floods. The "Hawpatch," a strip of sandy loam extending from Columbus to the Shelby county line, between Flatrock and Haw Creek, is unexcelled in the State.

No draining is required. It is level and rich. As soon as the timber is removed every foot of it is available for cultivation. The wealth of this garden tract is simply enormous, for the farmer who plants is almost sure of an excellent harvest. Our county is a grain growing county, wheat and corn predominating. The Fultz variety of wheat is now most popular, because it has a firmer straw and yields better than other varieties. The Gypsy is yet sown to some extent; also the Blue-stem. At the first introduction of the Fultz the shippers and millers paid from two to five cents less for it than for the Mediterranean varieties, but this difference has disappeared. The Lancaster, as fine a grained wheat as has ever been grown here, is never standing straight at harvest time; and, should the growth be luxuriant, it falls too soon to fill well. The yield of wheat this year was somewhat below the average of last year. Most of the early sown wheat suffered greatly from the fly, especially on the sandy lands. The quality, however, was fully twenty per cent. better.

The extensive milling interests of our county give us a good market for our best grades of wheat. The firm of J. R. Gent & Co. and F. Douner usually offer better prices for good grades than the shippers can afford to pay. The former company have ground within the last twelve months near one hundred thousand bushels of wheat, fully one-half of the manufactured products being shipped to points without the State. There are nine or ten other flouring mills in the county, all of which are prepared to make very good flour. The average price paid for what has been sold of the summer crop is about ninety-seven cents.

The corn crop this year will reach near 1,100,000 bushels. The quantity is fully up to that of last year. The quality of corn on the sandy land is generally excellent, while much of that on the clay did not mature well.

Much of the corn was cut up for seeding to wheat, and the warm, damp weather following nearly ruined much of it. The American Starch Works shipped here from Northern Kentucky a large quantity of fine looking corn, and sold it to the farmers for seed. Their intentions were good, but the result was bad. It had a thrifty growth, made large, fine ears, but none of it matured properly. During the fall a familiar form of greeting among farmers was: "How's your Starch Works' corn?" During the high waters of November many thousands of bushels

of corn were submerged in the drift wood bottoms. Much was totally lost. All that was saved was badly damaged, and was fed at home or sold at greatly reduced prices. The Armstrong, a flint variety of corn, is mostly planted for main crop.

There is a demand within the county for more corn than the farmers can raise for sale. The American Starch Works have purchased, within the past twelve months, over 400,000 bushels of corn, and have shipped over 5,000 tons of starch. With their increased capacity, they will want for next year about 2,500 bushels of corn per day, or 750,000 during the year. They are feeding at present 550 head of cattle. Gaff, Gent & Thomas, proprietors of the Cerealine Mills, have purchased in the same time near 600,000 bushels of corn, for which they paid, last year, fifty cents per bushel; this year's crop, forty cents. Their shipments, in the last eight months, of cerealine, pearl meal, corn flour, etc., were over 8,133 tons. They, too, are feeding cattle, there being, at present, 270 head of cattle in their yards. This demand makes good prices for the farmer, as these firms offer greater prices than shippers can afford to pay. The business of shipping corn is very nearly a thing of the past, but we can certainly vie with other counties in the shipment of its manufactures.

There was a small acreage of oats this year, and returns ordinary. What oats are sown are sown mostly for feeding at home, and not for market.

The year's crop of rye will possibly not exceed a thousand bushels.

The interest in barley is not booming either, though the crop this year may reach 12,000 bushels.

Timothy was good, averaging not less than one and one-third tons per acre.

Our farmers are beginning to see the efficacy of clover as a fertilizer. Many make it a rule to sow every field of wheat with clover, claiming that the summer growth pays, even if the ground is turned again in the fall. The crop this year was excellent. Besides the large yield of hay, the yield of seed was generally above the average; in many cases it was remarkable, being reported at six bushels to the acre, and over. Fred. Gross, who operated a huller, reports 1,042 bushels as the result of his work alone. Last year the crop was sold to local dealers at from \$4 to \$4.75 per bushel. At seeding time seed was worth from eight to nine dollars per bushel. This year the producers sold at about the same figures.

The potato crop this year was large, and quality good. Fine lots of potatoes were sold by the wagon load at from twenty-five to thirty cents per bushel. Many stoned or pitted, holding for the spring market. The Early Rose holds its own. The Peachblow is not cultivated as extensively as formerly. The Burbank Seedling, Mammoth Pearl, Beauty of Hebron, Early Ohio, Snow Flake and White Star are being tried with varying successes.

A good full set apple orchard is an exception and not the rule. The trees, however, which lived through the reverses of 1881-2 generally bear very well. The nurserymen have been enjoying a boom. While our own Washington Nursery has received a fair share of patronage, as also Ohio and Illinois nurseries, the firm of Milhouse & Co., of Butlerville, Jennings county, has sold a large number of trees in this county. This firm has been patronized largely, with the hope that trees started in the clay soil of that locality will be more hardy.

Small fruits, such as strawberries, raspberries, blackberries and grapes are not

cultivated extensively, though the interest is growing. Aside from several market gardeners, the kitchen garden contains all that are raised.

The interest in good horses is shown in the fine draft teams and good steppers daily seen on the roads and in the streets. The tendency is to patronize well bred stallions at from \$15 to \$20, rather than ordinary animals at from \$6 to \$10. Our people are awakening to a knowledge of the fact that "blood will tell" in the offspring and greatly enhance the price of such animals.

Bartholomew county proves her affection for the "unfortunate mule" by ranking no lower than third or fourth in the State as a mule producing county. In spite of the spiteful remarks regarding this spiteful (?) beast, teamsters and farmers acknowledge the fact that when it requires a "long pull" and a "strong pull" the mule is "thar." The mule undoubtedly does more hard work and withstands more hard cuffs, on small feed, than horses can, and were they to return blow for blow, there would not be a half dozen live mule drivers in the county to-day.

Short Horns are the predominating breed of cattle, and we can show up some good herds. In the face of lively competition from outside the county, our breeders were awarded fifty per cent. of the premiums offered on beef cattle. The interest in Jerseys has been increased in the past few years, and although they are generally conceded to be small "fry," there is always rich cream and the possibility of good butter in the neighborhood of a fresh Jersey cow. They will never be the leading breed here, for our citizens are fond of beef as well as butter.

The reverses the hog feeders have had in the past few years, and the large demand for corn at the mills, have caused a retrogression in the hog interest. A good price for corn, money sure, is considered by many to be better in the "long run" than to assume the risks of feeding largely; consequently, many who were extensive feeders now content themselves with enough hogs for home use—possibly a few more. The Poland China and Berkshires are the leading breeds, the former predominating. A few Chester Whites are scattered over the county, and they are generally pretty well liked by those who own them. No Jersey Reds.

The old way of letting young hogs "root hog or die" during the winter, with the idea that they shall be "crowded" when fattening time comes, is giving way to the practice of feeding freely that the hog may be ready for market as early as possible. The eight months hog, weighing 225 and upward, is better appreciated than the twelve months hog at 400 pounds. While such as the former are best for meat, the feeder reduces his risk by early sale.

The sheep is here, and is becoming more popular as the years roll around. Their feeding expenses are scarcely perceptible, yet when April or May comes they each yield up a good fleece of wool, weighing near an average of seven pounds. The Southdowns, Cotswolds and Merinos are the breeds represented here, and each has its warm friends.

The new road law gives good satisfaction. More judgment is being exercised in the management of the roads. The main idea of patching up the bad places has given away to the more rational idea of constructing roads. There has been enough labor expended in "throwing up and making bad roads worse," to grade and gravel all of the principal roads in the county. There has been enough gravel hauled and dumped—a load here and a load there—in mud holes to make

quite a perceptible show on a continuous line. It is rather an expensive way of filling up mud holes. With the exception of repairs on parts needing immediate attention, our Supervisors usually grade no more than they can cover well with gravel. Such work does not require repetition each succeeding year. They have nearly all come to the wise conclusion that a road can not be durable if its bed is below the water line, hence they give more attention to drainage.

The wire fence is coming, and the day is coming when it will be *the* fence, possibly with iron posts, instead of wood. Winds do not blow it down; stock are afraid of it, and it does not take up so much space as most other kinds of fences, besides it costs little more than other fences. The "worm fence" has about seen its day. They are giving way to board, hedge or wire.

We have a great many hedges, though very few of them can be relied on as fences. Nine out of ten who set out hedge plants for fences have neglected them, and now they are elephants on their hands. Those who gave the growing plants the proper attention may sometimes have the gratification of seeing the rabbit jump *over* rather than risk the *under* passage; but such accidents are rare. If they do occur it is not proof that the fence is perfect, but that the rabbit is not posted in that locality.

I can report a decided increase of interest in drainage. Several years ago the manufacture of tile in this county exceeded the demand; now the demand is much greater than the supply. Farmers are learning that well drained soil can be plowed earlier, planted earlier and harvested earlier than undrained soil; that either wet or dry "that ditch" exercises a good influence on the growing crop. The usual depth for tile drains has been two spades, or about thirty inches. Many now make the drains three spades deep, because a deep drain affects a larger scope of ground. The smaller sizes of tile are giving way to larger sizes, there being very little demand for any size less than three inches.

There has been some ditching done under the new law, and while some are very much pleased with its operation, there are others who are "fighting" mad and will be as long as they possess their present disposition. It is undoubtedly a good enactment, and through it many will be enabled to make available lands which they have cultivated in vain. The farmers are taking hold of the improved implements as soon as they are convinced of the superiority over the old. Sulky breaking plows are rapidly displacing the old patterns, especially for fall breaking; the wooden rake to the sulky spring toothed; the spike toothed harrow to the spring toothed; the single corn drill to the checkrower; the dropper and self-raking reaper to the self-binding harvester. It is probable that the sale of farm implements in the past year will be near 15 per cent. of the value of farm productions. Some of the best implements we use are manufactured right at home by Reeves & Bros., of Columbus. We have direct railroad communication with Indianapolis, Cambridge City, Cincinnati, Madison and Louisville. The new road connecting Columbus and Greensburg, via. Hope, is completed to the corporation line of Columbus. At present there is litigation regarding the payment of aid voted the road, and it is probable that the road will not be completed until a decision is made. The sum of \$100,000 was voted by the citizens of the township through which it runs, with the understanding that it "shall be a competing line." The common prayers

of our people are that it may be maintained as such, and not be "absorbed" or "gobbled." This road completed, Columbus can be entered by rail in either of six directions. Our business men are enterprising, and will make the most of these advantages.

The Bartholomew County Agricultural and Industrial Association was organized June 9th, 1883, with Simeon Boaz, of Clifford, as its first President; Dr. W. O. Hogue, of Columbus, Vice President; Jno. S. Crump, of Columbus, Treasurer; W. B. Davis, of Petersville, Marshal, and Joel S. Davis, General Superintendent. The desire of the association was to hold a fair which would thoroughly represent the industries of our county without a corresponding exposition of its vices—to put a stop to present tendencies, and confine the fair to its legitimate uses. Those friendly to the enterprise have long desired that the industrial exhibits at our fairs shall be considered the body, and not the tail; that gambling, wine and women shall not be given the front seat. The gamblers harvest is contemporaneous with our fairs, and the fact is far from complimentary to the managers. They admit the viper into the midst of public assemblages because he brings money. If it is desired to advance the interests of the drinking and gambling fraternities, no better method can be adopted than to allow their practices under the name of agricultural or industrial fairs. There is respectability in the name, at least. The term "Agricultural Fair" is a misnomer as applied to many of the fairs of the present day, and the complaints of those who desire a different management, we think, are generally well founded. Many farmers, and others, withhold their influence from fairs, not because they lack enterprise, but because, in giving their time, influence and money, they give the vice of the day a greater "boost" than they do the industries. If it is impossible to secure the legitimate results for which fairs were instituted, without the admission of immoral practices as one of the chief attractions, (?) then "they have outlived their usefulness, and should be placed on the retired list, and practical, useful, common sense fairs established in their places."

Our association held its First Annual Fair August 28 to September 1, inclusive. The fair was held on the grounds of the old agricultural society, which grounds were leased for the occasion. Considering the value and variety of the exhibits, we doubt if the show has ever been excelled in the county. There were thirty-two entries in heavy draft, embracing some as fine horses as there are in the State; sixty-three entries in general purpose, forty-two light harness, and twenty-two saddle horses and roadsters.

The high standard of the animals shown is proved by the fact that many of them were placed in competition at more pretentious fairs, and still carried off their share of the honors. Our own county made eighty per cent. of the entries, and was awarded seventy and one-half per cent. of the premiums. Of jacks and mules, fifty-five per cent. were from Bartholomew; and, in proof of the superiority of our long-eared servants, we were awarded seventy-one per cent. of the money.

Notwithstanding the large additions made to the grounds in the past few years, there was a cry for stalls. Additions were made as rapidly as a large number of workmen could do it, yet some who desired to exhibit took their stock home for want of room. As it was, we managed to book ninety-five entries, fifty-seven of which were sleek, quiet and useful Jerseys, attracting fully as much attention as

the larger "fry." There were twenty-eight entries of Short Horns, and they were interesting to all those who considered tender beef a toothsome edible. Three entries of Short Horn herds were made in competition for the large premiums offered our best herds of beef cattle. There were seven entries of milk cows, and they were all Jerseys, too. The milk drawn from these cows at that time was the center of a group composed of excited lookers-on and wise-looking judges. The cream rose to the surface, became sour and ready for the churn long before the award was made. In fact, those scientific gentlemen wrestled with the problem for five weeks. There never has been a more creditable show of cattle here. Thirty-six and one-quarter per cent. of the entries were home entries, while the awards were near thirty-seven per cent.

Of sheep there were 22 entries of Middle Wools, 15 of Long Wools, and 12 of Fine Wools. The show of hogs was good, though there were few entries made by our own farmers; entries were 25 Poland China, 16 Berkshires, 1 Suffolk and 3 of herds. The show of poultry was excellent, embracing a great variety of fowl, some of which were placed in successful competition at the State Fair. Nearly 83 per cent. were from this county, and were awarded 77 per cent. of the money. The show in the mechanical department was good, though it should have been somewhat better. A contract was made with Reeves & Bros., who furnished power and shafting, thus enabling exhibitors to show their machinery in motion.

There was a very good show of farm productions, Agricultural Hall being well filled. Even the "*punkin*," the asserted emblem of agricultural fairs, was there.

The early date of the fair made this department less complete than it would have been had the farm and garden crops been further advanced toward maturity. As it was the space allotted them was well filled, there being 132 entries. There were 62 entries in the culinary department, and 232 in the department for ladies work, our own ladies making 117 of the entries, and being awarded over 45 per cent. of the premiums.

Fine arts were represented better than usual, as the report will show. On the whole, we are proud of our exposition, and sorry that it did not receive the patronage it deserved. One reason for the latter was that the giant tent of "Jumbo" was pitched in Columbus, the week after the fair; and, it is conceded that this reduced our receipts fully \$1,000—possibly \$1,500. If, with the experience of the past, our people do not yet know what they want, it is not likely that they ever will decide or unite on the "golden mean." The association does not feel greatly discouraged because it did not have a surplus "bar'l" to "divide out." On the contrary, it issues an invitation to all of its patrons and others to come next year, as we expect to be "alive and kicking."

S. M. GLICK, Secretary.

BLACKFORD COUNTY.

The Sixth Annual Fair of the Blackford County Agricultural, Horticultural and Mechanical Association was held on the Fair Grounds of the Association September 18 to 31, 1883, and was, in all respects, except in a financial point of view, a most gratifying success. The average display of stock, and other articles usually placed on exhibition at county fairs, was superior to that of any preceeding fair held by the association. The attendance was not as large as on some former occasions, and was especially diminished on the last day in consequence of showers of rain and threatening weather.

For the reasons apparent from the foregoing statements, and in consequence of expenses necessarily incurred in arranging for and holding the fair, and some improvements made on the grounds, the association found itself unable to pay out its premiums in full. This unfortunate circumstance was regretted by none more than by the Board of Directors. Our people, however, are not discouraged. A vigorous effort will be made to provide for the indebtedness of the association outside of the proceeds of the next year. No effort will be spared to make the fair of 1884 equal, if not superior, to any of its predecessors in the way of exhibits, and by carefully cutting down expenses to the minimum, it is hoped that a complete success will attend our coming annual exhibition.

It is probable that no county fair in the State has so much opposition to encounter in the way of competition as the Blackford County Fair. Our entire territory is tributary to surrounding local fair associations. The Dunkirk Union Fair is located ten miles southeast of Hartford City, the Union Grange at Five Points, Wells county, is about the same distance north, and the Union Grange in southeast corner of Grant county, is about eight miles southwest of us. Those Grange fairs are usually largely attended. The people of the surrounding country make them an occasion of social reunion, and the people from our own and neighboring towns attend them as a kind of picnic, and the effect is to materially detract from the interest in and attendance upon our county fair.

The crops of wheat and corn for 1883 were far below the average in this county. Wheat did not make half a crop, either in quality or quantity, and the premature frosts nearly ruined the corn crop. We had a large crop of potatoes, and the hay crop was magnificent. The apple crop was unexpectedly large and of unusually fine quality, and many hundreds of bushels were bought up and shipped the prices paid ranging from sixty to seventy-five cents per bushel.

Blackford county has had a wonderfully rapid development in the past few years. The timber trade has been immense, in our judgment a little too much so, the fine marketable timber of our originally heavy forests being in a large measure exhausted; but the march of improvement and progress is everywhere visible. Several first-class gravel roads have been built, and the preliminary steps are being taken for the construction of several more, and the time is not far distant when every public highway of any importance in the county will be a free pike.

Remarkable enterprise is also exhibited in the way of public drainage. A vast amount of ditching has already been done, hundreds of acres of wet lands have been thus reclaimed and "made to blossom as the rose," and yet this branch of industrial development is only in its early infancy. Our Ditch Commissioners are crowded with business, and are unable to complete the work assigned them at each term of court in time to be reported at the succeeding term. Tile underdraining is growing in favor every year, and quite a number of tile factories are doing a flourishing business in this county. The fact is that Blackford county has a soil which, when properly drained, is unsurpassed in fertility and durability, and the time is not far distant when this county will be known and recognized as one of the richest agricultural districts in the State of Indiana.

Our annual fairs attest the fact that our people are giving more attention each year to the improvement of stock of every kind. We had a most excellent show of first-class horses. Thoroughbred cattle are rapidly supplanting the scrub breeds of the pioneer days, and affording a very practical illustration of the Darwinian theory of the survival of the fittest. Pretty general attention is given to the breeding of swine, as is shown by the fine displays of the Berkshire, Poland China and their crosses, and the traditional fleet-footed "elm peeler" has been gathered to his fathers, metaphorically speaking. Wool growing is also becoming a very important, and remunerative branch of industry.

If time and space permitted, we would gladly conduct the reader through the several departments of our fair of 1883, with its magnificent display of agricultural, mechanical and household implements and cabinet ware, fruits, grains, vegetables, products of the soil, table comforts in almost endless variety, and the superb and elegantly arranged floral hall. But we will no longer recount past achievements. Our faces are steadfastly set toward the future, and to our Seventh Annual Fair in 1884 we extend a most cordial invitation to "all the world and the rest of mankind."

B. G. SHINN, Secretary.

BOONE COUNTY.

The Twenty-fourth Annual Exhibit of the Boone County Agricultural Society held on the grounds of the association near Lebanon, Aug. 21, 22, 23 and 24, 1883, was one of the very best ever held by the society. The various departments were better filled than usual. The people throughout the county manifested greater interest than for years past. The weather was all that could have been desired. The exhibitors expressed themselves well satisfied with the awards made by the committees.

The following number of entries of live stock were made, viz.: Horses, 217; jacks and mules, 33; cattle, 46; sheep, 74; hogs, 139; poultry, 51. Besides the above, the usual number of entries were made in agriculture, horticulture, textile fabrics, fine arts, etc.

Agricultural Hall was well filled and arranged with great care. This display of farm machinery was by far the best ever made at our fairs, including that of the Champion Reaper Company, with its own steam power. The Studebaker company was present with its celebrated farm wagons. The Olds wagon of Ft. Wayne, and the Zionsville wagon works were each represented by specimens of their best work, the latter (of our own county) carrying off the first premium.

Floral Hall was filled to a jam with every conceivable article of ladies' manufacture, which was admired by all visitors.

Wheat, corn, oats and hay are the leading crops; and the improvement of the live stock is receiving more attention from our farmers from year to year.

Our people started out a few years since to thoroughly drain their lands, and though great the task, they are succeeding nobly, as the 450 miles of open ditches and 2,000 miles of tile drains will attest. Twenty-one tile factories are kept busy throughout the summer months.

Under the present gravel road law there have been 120 miles of free turnpikes built, and there are thirty-five miles more under contract to be finished early next spring.

The society is in a healthy financial condition. The grounds and improvements are owned by the society, and are free from debt, with a small cash surplus in the treasury. During the last year an amphitheater, costing \$600 and having a seating capacity of 1,200 persons, reverted to the society, and the time track was improved until it is now one of the best half-mile tracks in the State. The managers have in contemplation other improvements for next year, which will add greatly to the attractiveness of the grounds.

JOHN W. KISE, Secretary.

CASS COUNTY.

The Eleventh Annual Fair of the Cass County Agricultural Association was held on their convenient and beautifully located fair grounds at Logansport, Ind., September 18 to 22, 1883. The weather being fine, the attendance was large, making the fair a success financially and otherwise, as was evidenced by the fact that after paying premiums and all other expenses, there was left a balance of \$600.

The grounds of the society are well situated, containing thirty-six acres of land well adapted for the purpose, and beautifully shaded by a grove of natural forest trees, and well supplied with water, stabling, sheds, and pens for all kinds of stock, a beautiful fine art hall, agricultural and mechanical halls, and all other buildings necessary to make it a first-class fair ground.

The success of any fair depends largely on good management and favorable weather. Our people are awakening to their own interests, and that of the society, and realize that these annual gatherings or fairs, are for their interest, and from which they derive large benefits, and by their presence and competition they encourage and aid the building up of this important institution of the county.

The exhibition was fully up to the best years, in nearly all departments, and in several the show was superior to anything heretofore.

Considerable attention is being paid to the breeding of the heavy draft horses, and since the introduction of Norman and Clydesdale horses, we have a very fine show in that class. There was also an excellent exhibit of roadsters and general purpose horses, which their owners need not be ashamed to show at any fair. The running as well as trotting and pacing horses were on hand.

In the cattle department there were several herds of Short Horns, Herefords, and Jerseys. This was the first time that the "white faces" made their appearance at our fair, and consequently made quite an attraction, and were much admired.

Sheep, swine, and poultry were out in full force, with good specimens of the different breeds and strains.

The ladies made a very fair display of their handiwork in floral hall, for which they deserve credit.

In the horticultural and farm product hall the display was simply immense. The show of fruit was grand, and could not be excelled in quality. There were 193 entries, composed of 428 plates.

Of grain and vegetables there was nothing lacking to make it attractive.

The year 1883 has been a fairly prosperous one for the farmers of Cass county. The most serious drawback was the unsatisfactory corn crop, on account of poor seed and a wet May and June, which prevented proper planting and thorough culture. The yield of wheat was below an average year. Oats and potatoes were an immense crop. Clover and hay were above an average crop.

The live stock has generally been healthy; the county has been spared any widespread epidemic among domestic animals.

To give a complete description of the agricultural qualities of Cass county would be impossible, from the fact that it seems to be adapted to all branches of agricultural pursuits, as much so at least as any other county in the State. Our farmers are fully awake to their interests; do more reading and give closer attention to agriculture and stock breeding and management. Compared with their condition of a few years ago, they are in much better financial condition. Certainly there is much less depression in agricultural business than is found in many other lines of trade or occupation. The mass of our farmers are in reasonably comfortable financial condition. The general condition of agriculture throughout the county is encouraging. The deterioration of the soils, of which so much is being said, and justly so, is very little known in this county. A more thorough and scientific system of farming brings larger results, and such farming is never done at the cost of the fertility of the soil. The farmer who tills his farm poorly exhausts its fertility without renewing them, runs his farm down, and finally gives way to some live, progressive man who comes in and takes the farm from the mortgagee. Among the means by which the farmers of Cass county maintain the productiveness of their lands are underdraining and seeding to clover. There are plenty of fields now as productive as any in the State that were once waste lands. Thorough underdraining, and that alone, has redeemed them, and made them productive. It has also made lands highly productive that were once cold and life-

less, producing very poor crops, because the water was held in them instead of being carried away.

The farmers of Cass county have the advantage of a good market. Logansport, with a population of near 15,000, and nine lines of railroads diverging from it, could not be otherwise than a good market for all farm products. The prosperity of the farmers is shown very distinctly by the appearance of their farms and buildings. One unmistakable evidence can be seen in the numerous splendid dwellings and barns which are being built. Good taste is being displayed in the style of architecture. Splendid structures for churches have been and are being built, and good and comfortable school houses occupy each school district. Progress seems to be the order of the day, and general improvement of live stock of all kinds is very apparent and gratifying. Our farmers use the best plows, harrows, cultivators, reapers, mowers, threshers, etc., which the market affords, and the market is fully supplied with all the leading implements and farm machinery. The fences on the farms do not look as they did ten or fifteen years ago, they are greatly improved, and many of them, post and board and barb wire fence, taking the place of the old worm fences. The question of fences and stock running at large is assuming vast proportions. Our present laws are insufficient to effect the object desired by the mass of the farmers. It is a wrong idea or custom that compels the farmers to build thousands of dollars worth of fences, for the sole purpose of fencing out a few cows and half-starved calves for some thriftless neighbor.

The public highways have been receiving considerable attention. A great many miles of gravel roads have been built in the past few years, and more are under contemplation.

D. W. TOMLINSON, Secretary.

CLARK COUNTY.

The Twenty-fifth Annual Fair was held on the grounds of the Association, at Charlestown, on the 11th, 12th and 13th days of September, 1883. The grounds are ample in size, and well arranged for the comfort and convenience of exhibitors. The exhibitors of live stock are furnished with stalls and pens free of charge, and other exhibitors are furnished space under the amphitheater and sheds built for their use. The grounds, too, are tastefully laid off and decorated with numerous shade trees, besides the forest trees still standing. The weather was very fine during the fair, and attendance as good as could be expected, considering that the Southern Exposition was in full blast on our immediate border. Good order prevailed during the fair, and exhibitors and visitors seemed pleased. Intoxicating liquors and gambling devices were excluded from the grounds. The show of horses was as good as could be expected at any county fair, there being 117 entries in the horse department. The jacks and mules were of fair quality, though lacking in competition. In the cattle department were exhibited some very fine specimens of the Short Horn breed, and also of Jerseys. The agricultural and horticultural departments were not as attractive as on some former years, owing to the

drought during the latter part of the summer, and the failure of the fruit crop, especially that of apples. The textile fabric department was well filled with specimens of the handiwork of the ladies, and attracted general notice and admiration.

The condition of agriculture in this county has been greatly improved in the few years last past. From the time of the first organization of the Patrons of Husbandry in the county, better methods, and more thorough cultivation have been practiced by farmers, owing to a general exchange of views and experiences, and to rivalry in farm management and products. Farming in this county is about evenly divided between grain growing and grazing. The grasses grown mostly here are red clover and orchard grass, though in some localities timothy and red-top are grown. All kinds of grasses do well here when put upon soil suitable for their nature. Kentucky blue grass does extremely well on the upland along the Ohio river. For grazing on land that is suitable for cultivation, it is most common to sow red clover and orchard grass, and on hill land where permanent pasture is wanted, orchard grass and blue grass. The system of rotation practiced in the southeastern part of the county, where the soil is suitable, is first, corn, then wheat, followed with clover or clover and orchard grass. In other parts where the soil is not so good, wheat and oats are raised, and timothy and red-top are the grasses mostly used. This county has nearly every variety of soil, from the very best to the poorest that can be found anywhere, and prices of land range from \$100 per acre down to \$10, for farming purposes. There are many places in the county not at all suited for farming, but they are extremely well adapted to fruit growing. The very best locations for raising peaches, quinces, cherries, plums, raspberries and strawberries, are to be found on the high knobs along the western border of the county.

Farm buildings and dwellings in this county are mostly of a substantial character, built of brick, stone and wood, showing that their occupants have been industrious and frugal.

The roads of this county are mostly of the common dirt kind, though we have forty miles of turnpike, and three railroads. In addition to agriculture and horticulture, we have a new industry rapidly growing up, that is the dairy business. Some of our best farmers have been giving their entire attention to dairying in the past few years. The milk product of some of the farms is manufactured into butter and cheese on the farms, while others send the milk to the Louisville market. The business seems to be profitable, and is well calculated to increase the fertility of their farms. The kind of cows used are of the native stock and Short Horns crossed, though there are quite a number of Jerseys and other milk breeds being introduced, which, so far have proved fairly satisfactory. The only objection to the Jerseys and Ayrshires is that they are too small for beef when they fail to be profitable milkers. The Holsteins are coming to the front here as a combination milk and beef stock, though as yet their milking qualities have not been fully tested in this locality.

The corn crop was greatly injured by the severe drought, so that not above two-thirds of an average crop was harvested. Early potatoes were good, but the late planting failed entirely. Apples not more than fifty per cent. of a crop, and peaches twenty per cent. Wheat half an average crop.

As to the matter of fencing we can only say that generally, farmers favor "fencing stock in," and in the best farming districts in the county there is very little stock allowed to run at large. Our fences are mostly of the split rail kind, and are fast giving out, so that very soon some other material will have to be used to take the place of rails. We have a considerable amount of stone fence, but it seems too expensive to come into general use. Wire fences are giving general satisfaction here as far as tried. Very little stock has been injured by them.

But few of our farmers avail themselves of the benefits they might derive from a careful study of statistics and agriculture reports, though there is an increasing interest in that direction.

DENNIS F. WILLEY, Secretary.

CLAY COUNTY.

Our Annual Fair opened this year September 10th and closed 14th. In point of entries it ranked among the most successful; in attendance it was not so good, owing to several causes beyond the control of the fair officials. Barnum's show, a circus and the County Grange Fair, all happening during the week of the fair, militated against us.

The Association at its annual meeting, September 29, 1883, elected new officers throughout for 1884: Silvan Weaver, President; Wm. Cordeny, Vice President; D. W. Brattin, Secretary; A. W. Turner, Treasurer; A. J. Montgomery, Superintendent; J. M. Hoskins, J. Croverdale and Wm. Jones, Executive Committee.

The next fair will be held during the week commencing the first Monday in September, 1884. A determined effort will be made to have it the best fair ever held in the county. Gambling devices of every description will be rigidly excluded from the grounds, and innocent, instructive and attractive amusements furnished in their stead.

There has been a vast improvement in the agricultural interests in this county. It is safe to say the improvements of the past three years are greater than those of any ten years previous. We now have several farmers that can not be surpassed in the State. Financially our farmers are in good shape, and improving their condition each year.

Our roads are wretchedly bad, and very little interest can be awakened toward their betterment. Until our farmers and merchants are brought to see how much good roads will add to their mutual advantage, we fear they will continue bad.

D. W. BRATTIN, Secretary.

DECATUR COUNTY.

The Thirty-second Annual Fair of the Decatur County Agricultural Society was held August 21 to 25, 1883, and was a success in every particular. During the past year the society erected a very convenient and commodious floral hall, pronounced by visitors as well as exhibitors the finest in this section of the State. Our fair grounds now contain forty-five acres. They are well shaded and beautifully located, about one-half mile east of the city of Greensburg. Horsemen universally say that we have one of the finest half mile tracks in the State. The grounds, with the improvements made last year, are worth about \$10,000. We have railroads centering here from five different directions, which gives exhibitors ample accommodations to ship their stock for exhibition with very little trouble. Our live stock department never was so well filled. Carpenters were kept busy the first two days erecting stal's and accommodations. The horses, for which our county is noted, were exceptionally fine, while no county fair ever made a better show of cattle, which included Short Horns, Jerseys, Polled Angus and Herefords. Our hog show was one of the main features of the fair. The principal breeders in that line in this county are Baker Bros., W. A. Robbins & Co. and A. S. Gilmore & Co. The sheep herds of Privett Bros. and James Marlow are known by all in this section of the State, and need no comment. The prosperity of the agricultural element of this county is in a healthy condition, to which the city of Greensburg is an index. Trades of all kinds are carried on. We have three national banks, all doing a flourishing business. Below we will give a few statistics in regard to the agricultural condition of this county:

Number acres of wheat sown in 1882	41,565
“ “ upland corn planted in 1883	38,423
“ “ oats sown	5,907
“ “ Irish potatoes planted in 1883	418
“ “ timothy meadow in 1883	13,489
“ “ clover meadow in 1883	15,869
“ “ blue grass in 1883	24,849
Number of rods of drain tile in operation	462,456
Gallons of sorghum molasses made	9,439
Gallons of maple molasses made	5,988
Gallons of milk taken from cows during the past twelve months	1,387,774
Pounds of butter made during the past twelve months	316,546
Number of hogs fattened the past twelve months	24,532
Weight of the same	6,491,473
Number of sheep grown	9,748
Pounds of wool clipped in 1883	51,550
Cubic feet of limestone taken from quarries during twelve months	900,000
Money on deposit April 1, 1883	\$283,429
Money loaned about April 1, 1883	847,297

ED. KESSING, Secretary

DELAWARE COUNTY.

In compliance with the statute requiring annual reports from each agricultural society, I beg leave to make the following report in behalf of Delaware county:

Our agricultural society held its annual fair at its fair ground, one-half of a mile north of the city of Muncie. The first two days were not favorable, being rainy. The last three days were lovely. We had a large crowd Thursday and Friday, and a fair crowd on Saturday, making the fair a financial success. We paid the premiums in full and had \$900 left to put on our indebtedness, which leaves the society only \$1,100 in debt, and have seven years in which to liquidate the debt.

The horse department was a splendid show of fine blood, and every class was filled. The speed ring was fine, each race being filled. No money was required of horse men in speed ring, the per cent. being taken out of the winners' purse, which was entirely satisfactory.

Mules, jacks and jennets were well represented.

There was the largest show of cattle and the finest blooded ever shown at our fair. There was a sharp contest for the red ribbon, and after the committee got through everybody seemed to be satisfied with their action.

Hogs were more numerous than at former fairs. There were hogs from Randolph, Jay, Henry, Blackford, Grant and Madison counties.

About the usual number of sheep were on exhibition—fine wool sheep or Spanish Merinos, Leicester or Lincoln Cotswolds, Southdowns, and other grades. The show was very gratifying to all concerned.

The show of poultry was not so good as in former years—quality good; number small.

Floral hall was filled to its utmost capacity with fine and good fabrics, made by the fair hands of the ladies of this and surrounding counties.

Our plan of running the fair is to sell day tickets instead of selling badges, and I believe this is the only safe way to run a fair to make it a financial success. We do not sell exclusive rights to any, thereby giving all candy stands, lunch stands, boarding houses, and all others, an equal chance.

Muncie is a flourishing city of about 6,500 population, with good buildings, good hotels, good stores, and everything to correspond with the city, and when my successor makes his annual report for the year of 1884 he can report that we have 200 miles of free gravel roads, which will make our country second to none in Indiana in roads.

Crops.—Wheat the poorest ever raised in the county; oats very good; corn almost an entire failure, owing to the long drought and early frost; hay good, well cared for, and in the best condition.

This is my report for the year of 1883.

J. M. GRAHAM, President.

ELKHART COUNTY.

The calendar year now closing admonishes us of the duty of making the required annual report to the State Board of Agriculture.

The Elkhart County Agricultural Society is not a stock company in the sense of individual ownership of the corporators. The corporators are those who for the current year preceding have paid into the treasury of the society at least \$1. A member must keep up his annual contribution, or he drops out as a corporator. Our organization dates back to 1851, and except for six years during the war, has given annual exhibitions. The fair grounds have in that time been changed three times—the present one is the best located of any. The grounds consists of twenty-seven acres, inclosed with fence—track, hall, stables, half-mile track and amphitheater, all owned in fee simple by the society, and paid for at a cost of more than \$5,000, and a small balance to commence the next year with.

The receipts and expenditures of the society for year ending December 31, 1883, were:

RECEIPTS.

From all sources aggregates the sum of	\$3,494 17
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EXPENDITURES.

Remaining debt of year, 1882	\$127 49	
Amount of premiums paid, repairs, improvements, and ex-		
pense of holding fair and taxes	2,296 46	
		2,323 95
Balance in treasury		\$1,070 22

For this sum there are many wants to appropriate it to. Additional stables, sheds for sheep and hogs, an addition to the amphitheater, together with repairs on fence, and other buildings, all which the wants of the society pressingly require.

The managers have been quite successful in excluding from the grounds exceptional shows and money-getting contrivances of questionable morality. In refusing such things, we have materially lessened the receipts from privileges, yet on the whole, the good opinion of the better people is with us, and it is believed no other course can be safely followed without risk of serious consequences.

The number and character of exhibits at this latest fair was fully equal to that of any former fair, particularly the exhibits of live stock, a fine show of carriages and wagons, farm machinery and farm products. In all these departments the show as to character as well as to quantity was well worthy of a fair of more general pretensions. There were indeed indubitable evidences of the advancement and progress made in agricultural interests. It has been difficult to bring up the cereal and vegetable exhibits to a point equal to their importance. Our farmers

have taken much less interest in showing these kind of exhibits than they do their live stock. They seem to lose sight of the fact that these vegetable and cereal exhibits lie at the very foundation of correct farming, and that better than any other they show the character and richness of our farm lands. The unfavorable season in the summer of 1883 somewhat limited the exhibition and character of that important cereal, Indian corn. Yet, for all, there was on show some very fine specimens of corn as produced on our warm, genial, sandy soil—as good as would be look for in more favorable seasons.

The arable acres throughout Elkhart county and the whole north end of the State are rapidly increasing from two sources—the conversion of timber lands into plow lands, which in some respects is a matter to be regretted, and second, from the reclamation of very numerous marshes by open ditch drainage. This work has been much aided by the recent acts of the Legislature making drains a matter of public interest, and consequently of enforced public action. Our farmers are also fully impressed with the advantages of underdrainage by tiling, and during all the fall and winter scarcely a day but farmers are seen with wagon loads of tile carrying them home to be laid down in low, wet, flat fields. All understand that without drainage these wet lands are nearly without value, but with drainage applied, give the richest and best plow lands of the country.

These district local fairs, the State fairs and the National exhibition of arts and manufactures, together with the public co-action of agricultural papers and the publication by State and by national authority of intelligent treatise and statistics on all subjects of agricultural character, has done and continues to do very much to stimulate and develop the advancement of agriculture, as well as to educate and bring up on to a higher plane the American farmer. Any one who goes abroad into the old world and sees there the farmer can not but draw a parallel between the tiller of the soil there and the intelligent, enterprising, energetic farmer of America. In no other country than the United States is there found in the business of farming so much of intelligent, well-directed, skillful industry, nor in any other country is the farmer so well-to-do, so independent, and living in the enjoyment of plenty, as seen in his good farm house, barn and out buildings; in the comfortables of his home, in his clothing, his farm implements and conveniences, his teams and his vehicles. The American farmer when well-to-do is indeed a very lord as compared with the tiller of the soil anywhere else on the globe. Any man who has been abroad can but be proud of the American farmer.

The foregoing is respectfully submitted as the annual report of the Elkhart County Agricultural Society for the year 1883.

JOHN W. IRWIN, Secretary.

FULTON COUNTY.

The Fulton County Joint Stock Agricultural and Mechanical Society, held its twelfth annual fair at its grounds, near the corporation limits of Rochester, Ind., on October 3 to 6, 1883, inclusive. The list of entries were double those of any former year. The show in every department far exceeded all former fairs, and beyond our expectation. The first day the air was too cold for comfort, rained at night and the next day, yet exhibitors continued to make their entries, each claiming the right to be waited upon first, thus exhausting the patience of the secretary and his assistants. The result was, all the stalls were occupied and demands for more. The halls were too much crowded with exhibits to admit of any convenience for the multitude of visitors, or awarding committees.

On Friday, the third day, a new feature of attraction was added to the fair, viz.: A reunion of veterans of a number of the Grand Army of the Republic Posts, chief among which was McClung Post No. 95, of Rochester, at whose expense a soldiers' dinner was prepared on the grounds, consisting of hard-tack, sow-bosom, beans and coffee, and to this repast all the ex-soldiers were invited, who enjoyed this old time relic as only old soldiers can. Those who wore the G. A. R. badge were admitted to the grounds free on that day, which resulted in profit to the society rather than loss.

Our fair being held at a time later than other fairs, presented an opportunity for all the gaming sharks to pounce upon the secretary for a license to practice their nefarious schemes on our innocent youth, all of which our Board of Directors have wisely forbidden.

The fair was a complete triumph in everything calculated to further the interests of the whole community, and much good has been done in that direction; marked results of progress are observed in agricultural pursuits. The principal crops raised in this county are wheat and corn. The manner of preparing the soil for wheat shows great improvement over former years, and the yield is correspondingly improved. Thorough cultivation of corn by our improved machinery, has about expelled all fear of failure to produce a good crop during a dry season, for as the warm air frequently comes in contact with the fresh plowed earth, causing the vapor in the atmosphere to solidify as it does on the outside of a pitcher of cold water, so will the frequent stirring of the soil produce natural irrigation.

This county contains thousands of acres of bottom lands which being formerly subject to overflows, were rendered almost valueless, but now under the late drainage laws there are being constructed large open drains, which will reclaim and open out some of the best farm lands in the county, and thus add materially to the wealth and resources of the same. We have but one tile mill in operation in the county, and it not being able to supply the demand, our sister Miami county finds a ready market for her surplus—and the use by our farmers is being readily appreciated. It is believed by men of reason, that the best laws for maintaining public highways, as well as best and most effective dog law for the protection of sheep, ever upon our statutes, were repealed by our last General Assembly. Personal lib-

erty, to the detriment of progression in many respects, appears to reign supreme in Indiana. No attention is given to timber culture. The value of our forest trees (like our mothers) will only be appreciated when they are gone. The board and barbed wire fences are about to be superceded by slats or pickets interwoven in smooth wire, the same being considered cheaper and less barbarous. Our people are not yet ready to fence stock in, but will be as soon as the present uninclosed commons are fenced, which will be about three years hence.

Of farm stock in this county I can only say that the improvement has not been what it should, although our cattle have been much improved by a few herds of Short Horn Durhams being brought into the county. One question will be brought before our incoming directors that may be of interest to other societies, viz.: Should the propagation of graded cattle be encouraged by agricultural societies? Jerseys are highly prized by dairymen and town folks, but as a rule farmers do not want them. There are a number of good flocks of sheep in the county, but until better protection from the ravages of the worthless dogs are offered, that class of husbandry will remain in the background, and many prevented from turning their attention to this profitable industry. Of swine, the Poland China breed predominates, though it has been argued that white hogs are less subject to fatal diseases than colored ones. The majority of horses in this county can be properly classed as general purpose, though we can boast of a few fleet steppers. Clydesdales and Normans are fast coming to the front for heavy draft purposes. Our poultry show might have been better if our premium list had embraced a greater number of breeds. Fruit (except peaches) and vegetables were never more plenty nor of better quality. The exhibits in this class would have done credit to our State Fair.

In conclusion, permit me, in behalf of the society, to thank the gentlemen from the counties of Kosciusko, Miami, Cass and Jasper, for contributing to our show of live stock, carrying away a good share of the premiums and leaving some choice animals in the county as evidence of the appreciation of our people of those who strive at perfection. May their herds never grow less.

JOHN M. DAVIS, Secretary.

GIBSON COUNTY.

Our last annual fair, held upon our grounds near Princeton, September 17 to 22, 1883, dispelled all fears in the minds of doubting and reluctant business men as to the capabilities and resources of this county. The exhibits in all departments far exceeded those of any previous years, and evidences of improvements in farming were to be seen on every hand. The pioneer life and the rude log hut have passed into history, and forests have become fertile fields—some laden with grain and others dotted here and there with large droves of blooded stock. Our rich alluvial soil, safe from disastrous floods, is fast making the farmer the moneyed man of Southwestern Indiana. In the neat frame cottage and in the palatial brick

mansion now seen upon farms throughout the county is seen the steady and substantial growth which our farmers are now enjoying. Everything about the farmers' home bears the imprint of honest and studied toil, and the abundant harvests of this year have instilled a spirit of confidence in all classes of business, satisfying the mind of every one that a country with rich farms and industrious farmers has a basis upon which the future may be insured. Notwithstanding the fact that most of our once boundless forests have become fertile fields and large tracts of land have been reclaimed by drainage, thus greatly increasing the amount of tillable land, still the price of farming lands has steadily increased. By rotation of crops, subsoiling, clovering, and manuring, many large fields which years ago were worn out are now made to produce the largest yield of grain.

Our displays this year in fine stock were the best we have ever had. A fine blooded horse is no longer a curiosity, and some of the best premiums awarded by the State Fair at its last meeting were given to Gibson county stock. Herds of sheep and cattle and blooded swine and poultry filled all the places prepared for them and all gave the strongest evidence of the care and industry of the farmers in these particulars. Not only did the farmers vie with each other in their displays, but the handiwork of their wives and daughters formed a refined and beautiful display of fabrics—such only as can be made at the quiet and happy fireside of a farmer's home.

The system of tile drainage commenced in this county a few years ago has steadily increased, and last year more tiling was put down than in any previous year. Many tracts of land which a few years ago were considered worthless have been reclaimed, and are now yielding from twenty-five to forty bushels of wheat to the acre. There are a large number of tile factories throughout the county which are kept busy supplying this now indispensable article. The old rail fence, which at one time could be built only from the best white oak timber, is still seen in a few localities, but is fast disappearing, and in its place is seen the wire and osage orange. The monarch of the forest, together with the black walnut and poplar, of which the greater portion of our forests consisted, are almost all gone, and if the farmers has any one thing to fear, it is the future result from the past reckless destruction of the forests.

Our farmers are all using the best and most improved machinery, and most of them now harvest their wheat with twine binders.

One of the greatest needs of our county at the present time is more capital engaged in manufacturing. There is plenty of capital in the county, but none of it scarcely is in venturesome hands, and our people would gladly welcome and assist any capitalist who is willing to invest.

The attendance at our last fair was beyond the expectations of all, and from the first day its financial success was assured. The total receipts were \$5,010.28; total disbursements, \$3,702.45, leaving a surplus of \$1,307.83, which will be expended in enlarging the speed ring and making other improvements upon the grounds.

With such a county as Gibson, and such farmers to till her productive soil and such a variety and abundance of crops, we predict for Gibson county a bright and prosperous future.

S. VET. STRAIN, Secretary.

GREENE COUNTY.

The crop returns for the year 1883, have been, on the whole, less favorable than the farmers had good reason to look for. The fly and other insects reduced the wheat crop to a minimum, proving in many instances a complete failure. The corn crop, in river bottoms as well as on upland, did promise a better yield at the close of the growing season than for many years past, but sustained heavy damage from wet weather and strong wind blowing it down in the upland, while the overflow of the low bottom has not only damaged the quality of the grain very materially, but in too many places has utterly ruined the crop. At the time mentioned we looked for ninety to ninety-five per cent. of a full crop, and expected a heavy surplus for shipment from this county, making up in part for the shortness in our wheat harvest. But the damage from water has reduced the sound corn to below fifty per cent. of the estimated return. Some corn, that was taken out of the fields before the second overflow, was in part saved by feeding it at once to hogs, favored by a rising market in hog products.

Speaking of the overflow of our streams, which recur so frequent in late years, allow me to suggest a few ideas. The once so productive bottoms are fast becoming the most uncertain fields of operation for the farmer, and hence the value of the low bottom land is only one-half for what it sold ten years ago. Without examining into all the causes for these overflows, it is certain that the clearing of the upland, ditching and underdraining of large tracts, allows the water to find its way to the rivers quicker than formerly. I think the time has come when something should be done towards straightening the rivers, which could be shortened in many places and permit the water to descend faster. All obstructions in the channel as well as in old river beds and bottoms should be removed, and permanent fencing abandoned, preventing heavy losses from the washing away of the inclosures as well as interfering with the current. In places where practicable, good bodies of land could be protected against overflow by small dikes, without injury to the other lands. Where turns in the rivers cut away the banks, willows could be planted furnishing the material for building break-waters at these places, and arrest the loss of good land. In a few years no formidable obstruction would be met with, and high water would recede much faster than at present. Some legislation, I think, is necessary, for the individual farmer can accomplish nothing by himself.

Oats and hay were good, and potatoes of fine quality, and yield very general. The dry weather in midsummer, and the ravages of the cabbage worm and other insects, cut short most garden products. The orchard furnished many good-sized apples of fair quality, but peaches only in favored localities. The product of the apiary was excellent, both in numerous, strong swarms and plenty of honey of the finest flavor.

If it was not for fair prices of hogs and cattle, our farmers would look at the past season as one rather unfavorable on their balance sheet. But with plenty of good hay to feed, they look into the future with some encouragement.

Several fine flocks of Merino sheep were brought into the county during last year, one of 500 head, and but for the losses sustained from worthless dogs, sheep raising would receive more general encouragement. Nothing better can be done with our half-worn hill lands than to convert them into sheep pastures, returning larger profits in this than any other way, besides improving the exhausted soil. The opening of ditches on our low lands and marshes is progressing favorably, and with it the underdraining by tile is keeping pace. Our tile mills are unable to supply the demand, and more kilns will go into operation the coming spring. I can only repeat what I said in last year's report, that these tiled lands give the largest yield and surest returns of any of our lands, being neither affected by drought nor injured by overflow like lands not tiled. Having no more public lands in our county, most of the land is fenced in, except the larger marshes not yet ditched, and which contain all the outside pasture of any real value. Why, under these conditions, stock should still be found on the highways to annoy the farmers, I am at a loss to understand. I think a law like Mr. Nelson proposes is the proper remedy, and hope the Board will recommend and use their influence with the next Legislature to have something of that kind adorn our statutes. While we have to maintain fences, the question of where to procure the necessary material, is with many, a grave one, especially with those farming the bottom and lands on the light timbered west side of our county, who are trying hedges and barbed wire in many places, on a small scale, as an experiment.

Our Fourteenth Annual Fair was held at Linton, October 1st to 5th, and was, except unfavorable weather, in every respect a success. We paid for all improvements made and the premiums awarded, and were able to pay \$300 on indebtedness. This debt was incurred when the society organized, by commencing with less money than would pay for the land and necessary improvements, and at one time threatened to break up the association. Under a different organization has not only the fencing, stalls, etc., been rebuilt, but the debt paid off, except a small balance, which would have been more than realized this year in gate fees, had the weather been more favorable. The society added twenty-five more stalls for heavy draft horses, and built a good hog house, 60x18, this season, and will erect another of like size for the fair of 1884. The exhibit in horses was exceedingly fine, showing from year to year an increase in entries with corresponding improvement in the stock. Several imported draft stallions were on the grounds, some showing their offspring. In cattle the Durhams were fully represented, and some fine new purchases made their first appearance on our ground.

The hogs, all Poland China and Berkshire, were shown in all ages, uniformly fine specimens and well bred. In sheep, the Merinos were most numerous, and with South Downs and Cotswold and their crosses, made a fine show. The poultry show was fairly good, but should be represented by far larger numbers than were displayed. The total number of entries in the live stock department was twice the number made last year.

The agricultural department was not so fully represented, falling off in the exhibit of wheat, oats and grass seeds. But the horticultural display was very fine, and better than last year.

The miscellaneous department did not come up to what it should be, but was

attractive. Altogether, the fair was the best ever held on the ground, and so far as came to my knowledge has given universal satisfaction. Although the weather was far from what we wished for, the promise to pay all premiums and contracts in full was sufficient to overcome this disadvantage. Had we published in our premium list, that if necessary we would "pro rate" our premiums, I am certain we should have been in that condition.

PETER SCHULTZE, Secretary.

HAMILTON COUNTY.

The Fifth Annual Exhibition of the Hamilton Agricultural and Fair Association was held on their grounds, one-half mile west of Noblesville, Indiana, August 27th to 31st, 1883, inclusive. The fair was a success in entries, attendance, and financially. We paid our premiums, expenses, improvements, and have a small balance in the treasury.

Grain growing is the prominent industry. Raising stock brings us thousands of dollars a year. We have sixty miles of railroads in our county; about 140 miles of free gravel roads finished and under construction, and our ditches are everywhere to be seen. It is estimated that our ditches have cost us \$100,000 in two years. Considerable improvements have been made in buildings this year. The old fashioned rail fence predominates—plank, wire and hedge in their order named. Wire is counted the cheapest, but some farmers consider it dangerous to stock. I think that a majority of our farmers are in favor of fencing stock in. The present dog law is not as good as the one repealed, but is less trouble to the owners of dogs. Our crops this year were not as good as 1882, although we have raised a surplus. Our small fruits were plenty, and apples more abundant than last year. We have a large acreage of wheat sown, which is in a prosperous condition at present.

W. C. VANCE, Secretary.

HARRISON COUNTY.

In accordance with custom and compliance with law, the society would respectfully submit the following report:

The Twenty-fifth Fair was held September 3d to 7th, inclusive, and was a decided success in every particular. On behalf of the board I wish to thank the citizens of the counties of Floyd, Clark and Washington, and also those energetic citizens of Kentucky who come over annually to mingle with us during our exhibitions. There were over 2,000 entries, and the society paid out over \$2,000 in premiums and all other expenses in full, and had \$1,300 left to improve our already well-improved grounds. No games of chance or tricks of demoralizing influences were allowed on the grounds. It was strictly an agricultural fair.

There are several fine Norman stallions in the county, as this is the class of horses that are attracting the most attention. In cattle, this being a dairy county, the Jerseys and milking breeds are being mostly sought after. Very few Short Horns or other beef cattle in the county. Sheep are mostly grades and mixed strains. Very few pure bloods; as a rule they look well. Hogs are doing well, but not so plentiful as usual. Poultry in abundance. The farmers are beginning to realize that a good poultry yard attached to a farm is a paying investment, besides furnishing good, palatable and cheap food for the table.

The crops of last season were not up to an average, on account of droughts in August and September. Wheat predominates, next corn, then oats, hay and potatoes. The usual rotation is to sow wheat with from 150 to 280 pounds of fertilizer to the acre, then clover one to two years, hauling the manure from the stables and spreading (no compost heaps are made any more to leach and wash away), then turn under and plant to corn in spring, oats next, then followed by wheat, fertilizer and clover.

Wheat looks well, with a good acreage sown.

The fences consist of rail, plank and barbed wire, which is fast coming into use, and is the coming fence on account of the growing scarcity of timber. The recent high waters, with the sweeping away of fences, has made the fencing of stock very popular.

Roads are not as good as they ought to be. With the abundance of material, both gravel and limestone, we should have a good system of roads.

Means of transportation are being rapidly increased—a good railway running through the north part of the county, with a branch to Corydon, the county seat; then the Ohio river washing the entire southern border of the county, and now a narrow gauge road is being surveyed from New Albany, through the central part of the county, to Cannelton, on the Ohio river, which will furnish abundant transportation for everything that can be produced or manufactured.

Manufactories are very few in the county, but no better location than Corydon can be found, as material and water is plenty and transportation cheap and certain.

The live stock as well as every other department at the fair was well filled, being the best we have ever had.

The women's department is getting to be one of the most attractive features of the fair, as the ladies are vying with each other as to who can make it the most attractive, so much so that some ladies had as many as from eighty to one hundred articles on exhibition. All honor to the ladies.

The society now pays out over \$2,000 in premiums, and exhibitors should understand that this is not done as a money making scheme, or for the financial betterment of any individual, but as an inducement to the very best methods of farming, and to the encouraging of the introduction of the best species of stock, such as will prove a lasting benefit to the entire county. Having this one general idea for the advancement of all in view, let us strive to make each coming annual fair more and more profitable.

J. Q. A. SIEG, President.

HENRY COUNTY.

The Thirty-second Annual Fair of the Henry County Joint Stock Agricultural Society, held September 18 to 22, was the best ever held by the society. The farmers seem to take a deeper interest each year in the improvement of their stock of all kinds, and the production of all kinds of grains grown in this portion of the State. Our county is solely an agricultural one, corn and wheat being the principal crops, and the yield this year was not more than three-fourths of a crop, and only of medium quality. Oats were good in quality and yield, but few raised for market. The grass crop for pasture and meadows was the best for a number of years, and owing to the warm and wet fall the pastures are good to the middle of December. Very little flax sown in the county. There has been great improvements made in the way of buildings during the past year, good barns taking the lead. Fences are kept in good condition, consisting of rail, plank, wire and considerable hedge. Timber is becoming scarce, and is being carefully husbanded by the farmer. No timber culture in this county. Our farmers are doing a great deal of ditching, using tile altogether, and the demand can not be supplied.

Our roads are in good condition, most of the principal ones being toll roads, and the road fund and labor is being expended on the less important thoroughfares.

I think the present dog law a good one, but it does not bring in as much revenue as the tag law did. Our people are much opposed to the new bridge and ditch law on account of the great expense imposed upon the county. All ditches are now made through the Circuit instead of the Commissioners' Court, requiring the duties of two ditch commissioners, a civil engineer, axmen, etc. And when a township trustee needs a bridge or culvert, and can get the cost appraised at \$50 or over, he can compel the county to pay for it.

Our fruit crop was nearly an entire failure in this county, and will be small for a number of years to come on account of the trees being so badly winter-killed, and the trees that were not entirely killed seem to be badly damaged and are still dying. A great many new orchards are being planted, but the winters seem to kill a large number of the young trees each year.

W. W. COTTERAL, Secretary.

HOWARD COUNTY.

The Howard County Agricultural Association held its annual fair at Kokomo, Ind., September 4 to 8, 1883, inclusive. The society, since its organization, has endeavored to sustain and promote the agricultural, horticultural and manufacturing interests of the county. During the past year the grounds of the society were sold at sheriff's sale, but luckily for the society the grounds were bought in by a friend, who proposes to hold the same for fair purposes. The universal verdict was that the fair was one of the best held for years, and yet there was considerable

dissatisfaction because the society scaled down its awarded premiums slightly. The amount paid out for premiums reached the aggregate of \$1,484.36. The future is not as bright as it might be, and yet there are a few who seem determined that our fair shall be kept up, and are actively engaged in working up an influence and in making arrangements for still another effort. Our county is improving wonderfully. It is pre-eminently a wheat and corn county, and we predict that the day is not far distant, when no county in the State will surpass Howard in the production of these great staples. During the past year, no other county in the State shipped to outside markets as many apples as did Howard county. While our fair this year was not what we hoped to make it, yet our county is still in the ascendant. Hoping for better things in the near future for our association, I close this brief report.

A. N. GRANT, Secretary.

HUNTINGTON COUNTY.

The Huntington County Agricultural Society held their Fifteenth Annual Fair on their grounds, one mile west of the city of Huntington, September 18 to 21, 1883.

To say our exhibition was a success this year, would be putting it very mild. The people have become fully convinced that there is "none other" than the Huntington County Fair, and, all things considered, is "one of the finest" in this part of the State. As an evidence of this fact, we will only refer you to our exhibit of receipts and disbursements.

Our exhibitions have been continually improving for the past few years, and so long as you can interest the farmer, mechanic, and all others—on whom the success or failure of such institutions depend—just so long county fairs will be a success and no longer. In this we have succeeded to the most marked degree, hence we never give the least thought to "failure" or poor attendance at our exhibitions. As we have stated, the success of these fairs is no longer a question of doubt. Energetic and individual work, together with a thorough system of advertising, has placed the exhibitions of Huntington county at the head of like enterprises in Northern Indiana, where it will ever remain. This year's exhibition was a most successful one, both financially and as regards competition in all classes. The weather was very favorable, and the attendance very large. The display in all departments was fully 25 per cent. larger than ever before. Never in the history of the society has there been such a display in Floral Hall, in agricultural implements or in stock, and never before has there been such a crowd in attendance, the result of which is due largely to the fact that our society allows no gambling, immoral shows or intoxicating liquors on the ground, the result of which is a quiet, peaceable and very instructive gathering, which, of course, is better calculated to promote the interests of all industrial pursuits, good morals and humanity generally.

The condition of our society is A 1 in every respect, as can be seen by the following exhibit:

Cash received from all sources.	\$5,148 39
Disbursements.	2,979 32
Leaving a net surplus of cash of	\$2,169 07

To operate on the next year, and the society does not owe a dollar.

CONDITION OF AGRICULTURE.

The wheat crop of 1883 was very poor, not being near an average crop, and of very poor quality, many fields having been plowed and planted in corn.

Oats were good, more than an average crop having been harvested.

Hay.—A very large crop, and most of it well cured.

The fruit crop was all that could be desired, especially apples, several thousand barrels having been shipped, which, of course, will make the amount for home consumption a little short.

Our roads are the best of any county in the State, there being more than 175 miles of macadamized roads now completed; of this number the extreme length of toll roads being about thirty-six miles, the balance being "free" roads. Every road leading into our prosperous little city is a gravel road, and during bad weather our merchants reap the benefits. Nearly all of the streams on all the roads are spanned by neat iron bridges of good construction, our County Commissioners realizing that a "good bridge" is an item of economy, as well as a thing of personal beauty.

With good gravel roads and a good drainage law, Huntington county will soon be second to no county in the State.

In the matter of drainage many acres have been reclaimed during the past year, and the good work still goes on. There are, of course, some objectionable features to the drainage act as it now stands, but it is the best we have had for some years, and perhaps it would be well enough to follow the maxim and "let well enough alone."

LEON T. BAGLEY, Secretary.

JACKSON COUNTY.

The Jackson County Agricultural Society held its Eighth Annual Fair on the fair grounds at Brownstown, September 10 to 14, 1883. The weather was exceedingly warm and the roads very dusty and water scarce, but notwithstanding the disadvantages under which we labored it was generally admitted we had the best fair ever held in the county. The society made \$500 additional permanent improvements, paid all premiums in full, and came out about even financially.

The show of horses excelled our previous exhibition, especially for light har-

ness and general purposes; not many heavy draft horses bred in this county. The speed rings were all filled with horses that were a credit to any society, the majority of them being owned by residents of this county. The show of mules was better than usual. Our best farmers believe they can get more service for less cost from mules than horses. The exhibition of cattle was not as large as at previous fairs, but a great improvement in quality, Short Horns having preference. Not much attention has been given in this county to raising hogs for the past few years, owing to the high price of corn and the low price of hogs; consequently the show of hogs was small. The sheep department was well filled, and attracted more attention and comment than heretofore. The long wool breeds take the lead in this county. The poultry exhibition was not as good as at former fairs, and no marked improvement in quality. Our exhibition of farm products and fruits was immense, and a great improvement over any previous fair, owing to the good crops and the fair being held a few weeks later than usual.

The ladies' department was the most attractive feature of the fair, there being a large variety of articles displayed and very tastefully arranged in the hall. There was no entry fee charged on anything except live stock, but twenty-five per cent. of the premiums awarded was deducted from all articles on the free list; an entry fee of ten per cent. of premiums offered was charged on all live stock, and stalls and bedding furnished free.

Our river and creek valleys are inexhaustible for corn and wheat, although for the past two years farmers have been greatly damaged by overflows, and some steps will have to be taken in the near future to either levee or straighten White River in order to protect the most productive portion of our lands.

Along White River we have a second or sand bottom which produces nearly as much corn and wheat as the first bottom, and is especially adapted to gardening and growing melons. Our hilly or up lands are becoming more valuable by the use of fertilizers, and converting them into grazing farms instead of grain growing. We have some excellent orchards on the upland which yield a good profit, and are a great convenience to the owners. Grain growing predominates in this county over any other kind of farming, corn, wheat and oats being the chief products, except on the sand land, where watermelons, nutmegs and Irish potatoes are the principal products.

Drainage has been the means of reclaiming, for agricultural purposes, within the past year, a large body of land in this county heretofore entirely worthless, and such benefits have been derived therefrom that ditching and tiling seem to be the leading improvement, notwithstanding the farmers are fast providing themselves and stock with good, comfortable buildings, and it is universally admitted that it pays well to have stock sheltered from the storms of our changeable winters.

Timber culture is yet unknown in our county. Timber is being rapidly converted into lumber, staves, cross-ties and spokes, instead of cultivating more.

Fencing is gradually being changed from old rails to wire on account of the scarcity of rail timber and the durability of the wire. The subject of fencing stock in or out can only be successfully reached, in our opinion, by a general law, and not by the Boards of Commissioners of each county. Boards of Commissioners meet four times a year, and are liable to be influenced by the petitions of

their constituents, and may regulate or change their orders as to stock running at large at least four times a year, thereby keeping the people constantly changing their mode of fencing. Therefore we think it better to have the same regulated by statute; and it would then be permanently fixed for two years. There is a difference of opinion on the subject of fencing stock in or out among our people. However, I think a majority of land owners are in favor of fencing stock in, while a majority of those owning no lands or small farms, and those residing in the cities and towns, are in favor of fencing stock out.

The statistical reports of the State are eagerly sought by many of our best farmers. More care should be taken in gathering statistics, and a greater number of the reports should be circulated.

J. H. MATLOCK, Secretary.

JASPER COUNTY.

The Jasper County Agricultural Society held her Twelfth Annual Fair at her fair grounds, Rensselaer, Jasper county, Indiana, on the 11th, 12th, 13th and 14th days of September, 1883.

The area of country directly interested in the success of the society comprises about 400 square miles, with Rensselaer, the county seat of Jasper county nearly in the center. The character of the soil is of a sand loam in the greatest portion of this area, with a clay or gravelly subsoil. This section is well adapted for agricultural purposes, corn and oats being the principal crops, although some farmers raise considerable wheat, and when this crop does hit it is a very profitable one to raise. The average yield per acre for corn, one year with another, is about forty bushels; oats about the same; wheat yielding from five to forty bushels per acre.

The farmers of this section, as a general rule, are in very good circumstances financially, but they have long felt the need of some way to thoroughly underdrain their farms, but, until recently, if they did any underdraining, they had to split or have timber sawed, and timber being scarce, there was but little of it done. But now there are two tile factories in the county working all the time, and are unable to supply the demand. The northern and southeastern portions of the territory above named are well adapted for grazing purposes, and there are many hundreds of cattle that feed on these lands in the summer, and are shipped to market in the fall. The quality of the stock in this county is very good, several parties making a business of breeding fine stock. The principal breeds of cattle are Short Horns and crosses, until a short time ago, when some have championed the cause of the Herefords. There are a few Jerseys, but are kept principally for dairying purposes.

The breeds of swine are Jersey Reds, Chester White, Poland China, and Berkshire, the Polands predominating.

There are but few sheep raised in this section, and those few principally Cotswolds.

There are but few positively good horses in this section, and they selling at prices out of all reason. Surely farmers are neglecting this all-important matter, and what is the strangest thing of all, that the farmers do not put their stock on exhibition at our county fairs. A few years ago we could compete with almost any other of the counties of the State, but not so now. Farmers and stock men seem to take no interest whatever in the success of the society, only to come on the day of the racing and spend their money.

I fear that horse racing at our fairs will ultimately be the end of them, as horsemen endeavor to so arrange that the important premiums are awarded for speed, and the money always taken by men and horses from abroad. I think that better premiums should be offered for cattle, hogs, sheep, and horses for general purposes, and if the societies then go under it can not be said that horse racing was the cause.

EZRA C. KROELS.

JAY COUNTY.

The Jay County Agricultural, Horticultural and Industrial Joint Stock Co held their Twelfth Annual Fair on their grounds, near Portland, October 2 to 5, inclusive, 1883. The fair was the most successful one, financially, ever held in the county. Total receipts, with balance in hand of former Treasurer, \$4,645.70; expenditures, \$3,512.97. For a more full report see Statistical Report in connection with this.

The weather at no time during the fair was favorable, nevertheless the attendance was good, and the general exhibit far superior to anything we have ever had in our county. Our success was attained by the whole Board co-operating together with a hearty good will.

As to our crops the past season:

Corn.—One-fourth crop, owing to early frost.

Wheat—Less than one-half crop, from being rusted.

Oats.—A full crop.

Potatoes.—A full crop.

Hay.—Crop good, and well secured.

As to improvements: The good work of drainage still goes on, and the time is in the near future when Jay will be one of the best farming counties in the State. Pike roads are being made in our county as fast as the law will permit to be done, and adding largely to the value of property in their respective localities.

Our farmers are posting themselves well in all matters pertaining to their business, and are using the best farm machinery that can be obtained.

As to fencing: The vote of our Board is in favor of *fencing in stock*.

A word personal, as to our society, and I have done. We made improvements this year on our ground to the extent of about \$800. We are out of debt, have good grounds, fine buildings, and money in our treasury, with fair prospects for the future.

R. B. STEVENSON, Secretary.

JEFFERSON COUNTY.

Jefferson County Grange Jubilee Agricultural and Mechanical Association's report:

Seven years ago the Pomona Grange of this county conceived that it would be to the advantage of the Order of Patrons of Husbandry and the agricultural interest to hold annual meetings for the purpose of having scientific lectures and discussions on the best mode of managing our farms, and in order to come under the protection of the law from intrusion by all kinds of games of chance, and other catch-penny institutions, we instituted an exhibition of farm products and mechanical skill in connection with these meetings. Our meetings were so well attended and so thoroughly indorsed by the farmers, that its growth was unprecedented. For four years the association had no regular place of meeting. The interest in the meetings being so great, it became necessary to establish a permanent place of meeting. In 1881 the association leased grounds four miles north of Madison and one mile from the J. M. & I. R. R., where we put up a few temporary buildings for the accommodation of exhibitors. This location being very inconvenient for citizens to attend, and for exhibitors to bring their stock, and the old agricultural society having failed to hold their annual meetings on the park grounds at Madison, many of the best citizens of Madison earnestly solicited us to move our location to that place. The Board of Directors, after duly considering the advantages, leased the driving park for one week in each year for the term of five years, where the association held their last meeting September 18, 19, 20 and 21. The exhibition of farm products was the best ever shown in the county. The exhibition of live stock was far beyond our expectation. The ladies' department was filled to overflowing. The mechanical department was poorly represented, especially in farm implements, owing, we suppose, to a prejudice existing against the order, which we hope will soon be eradicated.

Horse racing, gambling, and all catch-penny institutions, are positively prohibited from the ground during our meetings, although this is an exception to the rules on which fairs are commonly run. We believe that horse racing absorbs the agricultural interest, and by so doing, the benefits to agriculture are not what they should be. The condition of agriculture in this county is steadily improving. There is a great change within the last few years. Farmers are generally doing their work in a more systematic style, and the old slipshod style is fast becoming one of the styles of the past. Although our soil is not naturally as productive as that of some other counties in the State, but with the increase that we have made within the last few years, it proves that it will not be but a few years until we will be in the front ranks in productions.

There is a marked improvement in farm buildings; farmers are generally trying to make their homes more attractive. Barb-wire fencing is fast coming into use. Two years ago there was not a rod in this section of our county, but there are miles of it now, and it bids fair to come into general use. Quite a number of farmers have taken away their outside fences, and stock generally in this township (Madison) are kept up. The present dog law, I think, is a failure in this section.

I have not the data by which to give figures in this report, but will promise to furnish a more complete report in the future.

STATEMENT OF THE MANNER IN WHICH THIS ASSOCIATION WAS ORGANIZED.

We have seven subordinate and one Pomona or County Grange in this county, and one grange in Clark county, and one grange in Trimble county, Ky. Those ten granges compose the association at the present time. Each grange elects a director once a year to represent them on the Board of Directors. The association has laws which must be adopted by every grange that becomes a member of the association.

The business of the association is transacted by the Board of Directors. The prime object of the association is to advance the interest of agriculture, and not for making money. We hope to make it self-sustaining, which, if we succeed in doing, is all we ask.

Yours respectfully,

THOS. H. WATLINGTON.

JENNINGS COUNTY.

The Jennings County Joint Stock Agricultural Association held their third annual exhibition on their grounds, in North Vernon, August 7, 8, 9 and 10, 1883.

The show of horses and cattle was the best ever exhibited in this section, the entry books showing 184 entries in the former, and 125 in the latter. The exhibition of mules, hogs and sheep was fully 20 per cent. better than last year, while the poultry show—owing to the early—dates was a slim affair, of about sufficient extent to carry off all the premiums offered. The mechanical display was good, while the agricultural and horticultural collections were not in quantities or varieties to create a jam. The ladies' department, however, was almost a gorge; more than 800 specimens of their handiwork were on exhibition, and some of them exceedingly fine.

The receipts of the fair from all sources were \$4,618.25; and the expenditures—including \$418.88 for permanent and much needed improvements, were \$3,675.96, leaving a balance on the credit side of the ledger of \$932.29, which amount has been applied to the reduction of the debt the society yet owes on its grounds. While this result is very gratifying to the stockholders, they are not convinced it is the best thing they can do, but have determined to further improve and beautifying their grounds by the addition of other expensive but much needed improvements, including an amphitheater.

In addition to the regular annual exhibition, a number of progressive, wide-awake farmers and stock raisers are making an effort, with a view to increase the interest in their business, and attract buyers from a distance, to inaugurate a series of fat stock shows, at which the fat of the land so far as cattle, hogs or sheep are concerned, and a regular stock sale will be the principal attractions. Of this feature I hope to be able to give a fuller account next year.

In this county the corn crop of the past season did not develop a fair average of a good quality. The season was cut so short that much of it wilted when frost embraced and pressed his stinging lips to its soft and milky brow. The wheat did not meet the expectations of those of its friends who had predicted a large yield, yet what there was of it is of a good quality. This cereal promises very much better results next season. The oat crop was the best, within the recollection of the "oldest inhabitant," but the grass was short compared with former years, yet our farmers have plenty and to spare if the market was of a character to make a sale profitable. The grazing was first class—never better—and continued so late in the fall that a great quantity of young cattle and milk cows were "fat enough to kill" when the winter "set in," and are abundantly able to "weather the cold snap" they are now passing through.

The fruit crop was not a deluge, yet apples and some small fruit did better than they have for years; but potatoes, they are with us yet—we had millions of them. The yield was larger than it has been for years.

The improvement of farms and stock in this section is going on at a rapid rate, the former by a judicious and liberal use of standard fertilizers, and the latter by the importation of the best stock money will buy. The Short Horns that have been brought among us by a number of our most enterprising farmers have wrought such changes when compared with the issue of the "scrub variety," that reminds one of a wild, wild buffalo, that used to roam at his own sweet will regardless of fences or obstructions of any character, that they have created a sort of Short Horn fever that is becoming so widespread and consuming that everybody wants 'em, and but few farmers will become content until they get a few. The Alderneys or Jerseys are also rapidly winning a place. Many of these little pets have found a home in this county, and they are giving good satisfaction, and my opinion is that very many agricultural associations are neglecting to give this useful animal the attention and encouragement they deserve. And the Polled Angus cattle have friends who are enthusiastic admirers of their good qualities, ability to withstand severe cold weather and rough usage. The improvement of hogs and sheep is following closely on the heels of that of cattle and horses, and our farmers are in possession of as fine specimens as there are in the State.

The improvement of roads and changing them from the low ground crooked courses to where they can be made passable, has just begun. The first turn-pike built in the county has just been completed within the past year. It is a private enterprise, and encountered much opposition while in course of construction by a class of farmers who will be greatly benefited thereby. We hope the convenience this will be to them will convince them of the folly of their opposition and induce them to aid in the other enterprises of this character that are sure to follow.

C. D. SHANK, Secretary.

JOHNSON COUNTY.

During the last twenty years there has been a very rapid and pleasing change in the agricultural interests of this county. Our creek and small river valleys are inexhaustible for corn and wheat, while on our uplands blue grass grows spontaneously. The wheat yield for the year 1883 was equal to the amount raised free from damage in 1882. The corn yield was an average of former years, and is selling at thirty-five cents per bushel. Johnson county has more tillable soil than any other county in the State, according to its area. The land is well drained. We have six large and inexhaustible tile manufactories in the county, which afford excellent facilities for drainage at little expense. The fencing is in good repair throughout the county, with plenty of timber yet to draw from.

Improvements are good and on the increase. We have a fine, new court house that we are proud of, and think it will compare favorably with anything in the State.

Our county is becoming famous for the production of all classes of fine blooded and thoroughbred stock, including studs of the finest heavy draft, speed and general purpose horses. Herds of Short Horn and Jersey cattle, with hogs and sheep of the finest and best qualities. We can boast of the sheep of this county, the greater majority of which are blooded.

There are twelve good flouring mills in the county; two starch works, which consume about all the grain raised, and which furnish an excellent article of feed to our farmers for their stock.

Johnson county has one hundred and forty-four miles of gravel roads in good repair, and of lasting benefit to the traveling community, and of enhancing value to all lands along their lines.

The Fair Association of this county held no fair in 1883, but is fully organized and taking steps for the future.

D. H. MILLER, Secretary.

JOHNSON COUNTY.

The Urmeyville Agricultural Association of Johnson county held their Fifth Annual Fair, commencing on the 10th of October and ending on the 13th. Our fair has increased in interest every year since its organization. Our last fair was a complete success, the attendance very large, and the exhibition good, especially in field and garden products, there being fifty-one entries in corn alone, and other grain in proportion.

The Floral Hall was the greatest attraction of our fair, and was filled with admiring spectators from morning until night. We have purchased a large tent, sixty feet in diameter, for Floral Hall. We like it. Our ladies say they can make a much better display than in a wooden hall.

The show of live stock was not as good as we wanted to see, yet some fine specimens of horses especially Clydesdale, which are now taking the lead in our county.

The condition of agriculture in Johnson county is prosperous. During the last few years there has been a rapid and pleasing change. The result of a higher regard for general appearances is everywhere apparent. The last vestige of trees is fast disappearing from our field by the use of dynamite and blasting powder. The old log houses and stables are nearly all gone, and neat frame and brick are in their places. Cross fences are being taken away, enlarging the fields. The water is all (except the main creeks) being put under ground by tile drainage, and what, ten years ago, was waste land, all under water, is now our best land—a benefit to every one except the doctor.

There are nine tile factories in our county. All the tile is sold in the county.

Roads are in splendid condition. All the main roads are graveled, and some of the cross roads are already completed. Fifteen toll and fourteen free gravel roads, average of five miles to the road.

JOHN TILSON, Secretary.

KNOX COUNTY.

A glance at the map of our State reveals how truly this county is a gift from the rivers. The waters, rich with the ruins of older lands, have slowly deposited their treasure upon each side of a slight ridge, which may now be said to constitute the back bone of the county, and thus formed a great area, which, in general terms, may be characterized as upland bottoms. The point of the peninsula, formed by the junction of the White and Wabash rivers, has, in comparatively modern times, pushed southward many miles from the base of the upland, in the form of a level plain, densely wooded with walnut, gum and cypress, and where ancient currents have been locked in by the rising land, there appear lagoons and marshes, bearing cane and other growths, almost subtropical in a specie and luxuriance.

Upon the western side, for eighty miles, computing the sinuosities of the river, there is a water front upon the Wabash, a stream famous for its fertile valleys. Here the most prolific lands are those the river has left inland in its desertion of old channels. These lands, frequently in a state of nature, were high prairies, broken by small islands of oak, but more generally they were long, treeless marshes, into which the waters of the river poured at each overflow. The eastern and southeastern portions of the county present the same appearances in a milder type, showing that nature's forces have there been less profuse.

In such a country the history of agriculture, when it emerges from its most primitive state, is all comprised in a history of levees and drains. More than a century ago the French settlers, whose customs and laws constituted almost a perfect little republic, made rude attempts to construct and maintain levees at a common expense, and the explorer will occasionally now come upon the remains of their works, often left far inland by the inconstant river. These pioneer levees

were built of the lightest material, a yellow sand, and scarce exceeded three feet in height. It is contended by the old inhabitants that these fragile barriers stayed the floods in those days as effectually as levees since built to twice their height. The absence of skilled engineering was not more conspicuous then than those, in many instances, more recent, where costly and extensive works of the kind have become a prey to the devouring floods.

The first efforts at drainage were made under the provisions of a grant from the Federal Congress, beginning in 1785, donating a large body of lands to the inhabitants of the village of Vincennes, and, under subsequent acts, providing for the sale thereof, and the application of the proceeds to drainage. Under these laws a ditch, long known to the ancient French as *Le Grand Coolie*, was constructed and employed to carry off the waters from the prairie, just below the city. Under the swamp land laws of the State still other ditches were, in after years, opened, and have since been generally maintained; but another long period elapsed before a practical knowledge of the art of drain tiling enabled the energy of our farmers to reap its reward in the bountiful harvests.

The current of the Wabash at low water is about three miles an hour, and the general fall is slightly over twelve inches to the mile. This fall is also maintained from the dividing ridge to the river. The currents and fall of White river are a little less, but in each instance the facilities for ample drainage are sufficient. That our farmers are fast availing themselves of the advantages of levees and drains may be clearly discerned in the improved quantity, quality and certainty of all crops.

The constantly increasing demand for and improved price of farm lands indicate that these investments are profitable. Last year's transfers of farm lands aggregated in price the sum of \$547,450, an increase, I am told by competent authority, of over 9 per cent. above last year. The average price per acre does not exceed \$18. It is estimated that three-fourths of the county is devoted to agricultural purposes.

Last year there were produced 59,347 acres of wheat, far below that of ordinary years. There were 34,509 acres of corn, which fully matured and produced an average of fifty bushels to the acre. Timothy, oats, clover, rye and barley in the order named, stand next in rank to corn and wheat. Our meadows and pastures are remarked by all observers for their bountiful yields of nutritious grasses; and stock raising, just in its infancy, is becoming one of our most profitable industries.

The last fair held by our society began on the 8th and ended on the 13th of last October, and was in point of excellence the most successful exhibition we have yet made. The home herds of cattle, horses, sheep and hogs could hardly have been excelled in the older stock raising districts of the famed blue grass region.

Short Horns and Jerseys appear to be the favorite breeds with our producers, and the best points of the breeds were fairly shown in the specimens exhibited. In farm horses a disposition to infuse the blood of the heavier stock is quite noticeable, and Clydesdale and Normans, in various degrees of purity, were shown in large numbers. Our splendid half-mile track always brings a fine show of speed horses, and our speed ring was excellent in its attractions. Swine and sheep were shown in all the improved breeds. Blooded stock has indeed become such a pas-

sion that it is believed a progressive farmer must even discard the old yellow cur and keep a Gordon setter for a "coon dog."

The total entries in all departments aggregated 2,177, and the total of premiums paid, \$2,939.

Here, as elsewhere, fences are a pressing question in economy. The belief is growing that it is cheaper to fence stock in than out, but prejudices in favor of the old way have not entirely disappeared, and which is the better mode is still an open question.

The future of agriculture in this county is wrapped up almost in the problem of engineering. Good levees and drains will bring us success and increased prosperity.

GERARD REITER, Secretary.

LAGRANGE COUNTY.

It becomes my duty and pleasure, under the statute of this State, to make a report as Secretary of the Lagrange County Agricultural Society for the year 1883, it being the thirty-first year of its organization and quite as successful as any preceding one.

The first consideration was the condition of its buildings, which, after a lapse of twenty-five years, were in quite a dilapidated condition; and, not wishing to infringe upon the resources of the society, a subscription was solicited by the worthy and efficient President, M. Balyeat, with unbounded success, and the art hall was reroofed, painted two coats, and otherwise improved, which cost \$252.50.

At the opening of our fair, which was on Wednesday, September 26, the officers and directors were at their proper places, and took hold of their duties with energy and zeal; and, with the pleasant weather during the four days, we met with perfect success, closing Saturday, September 29.

The entries were quite in excess of other years, with a few exceptions. The entries in the different classes for horses were quite numerous, with a very perceptible improvement in all grades. The number of entries in cattle was not, perhaps, as great as some years before, but the stock was superior, with some full thoroughbreds. Hogs were first class, the Poland China taking the lead, surely giving us one of the leading staples of Indiana. Hominy we are obliged to import on account of the failure in the corn crop. In the quantity and quality of our sheep, we don't propose to be beaten in the State in fine middle and coarse wools, all of which were exhibited by the different competitors, who were very much pleased with the improvements in grades and the liberal premiums paid. In agricultural implements, of course, we have all the best and latest improvements, as our farmers are able to purchase what they need; in fact, all branches of agriculture in this county are of the highest order.

The report of the last Secretary made mention of the use of tile to a certain extent. I am pleased to say that the reported sales of 1883 are more than double

of any previous year, showing that our low lands and marshes are being brought to a more useful purpose than raising thickets of willows and massauga grass.

There is not, perhaps, a county in the State whose educational department is in any better condition than this. Through the untiring efforts of our worthy Superintendent, E. G. Machun, the schools are doing more and better work than ever before.

H. M. KROMER, Secretary.

LAKE COUNTY.

Lake county is the northwest county of the State, bordering on Lake Michigan, with Illinois on its west line, its county seat Crown Point, being about forty miles from Chicago. This proximity to the big city has a marked influence in shaping the modes and manner of our farming. All along the Chicago and Grand Trunk Railway milk is sent to the Chicago market, and it is building up an industry that will soon rival in importance the products of the dairies in the country round Elgin in the State of Illinois.

The demand for good butter and cheese, and the near market, our county being crossed by more miles of railroads than any in the State, gives every farm such facilities of shipment to Chicago, that dairies are increasing all over the county. South of the Calumet region, bordering on the lake, stretching away to its southern boundary, the county is made up of prairie land, interspersed with groves and timber along the water courses, and all along the Kankakee, vast low lands, which yield wild hay in such quantities as to give abundant supply to all the farms along and near its borders. Everything contributes to make it a stock and dairy county. Crops which go to make up feed for horses, cattle, sheep, and hogs, are the kind mostly cultivated. Winter wheat is raised successfully in the eastern part of the county.

Our Twenty-fifth Annual Fair for 1883 was held on the fair grounds, at Crown Point, on October 2, 3, 4 and 5, with a good attendance, our people generally taking an interest, and making it a social holiday. Many profit by it, selecting and buying good stock to improve their flocks and herds at home. We charge 10 per cent. on all entries, and have always paid our premiums in full.

Our entries this year were, 590; receipts, \$2,008.27; disbursements, \$2,027.51. Our expenses were increased by building stalls, and improvements to track, etc.

Our entries on cattle, sheep, and hogs, were less than last year, caused by consolidating some of the classes. This will be looked to in the future.

In horses we excelled all previous fairs. It was a show worthy of a State Fair. The imported and home-bred Normans, Clydes, English drafts, and other well-known breeds, attracted much attention. This county is becoming noted for good horses, and our horse sale every month, at Crown Point, brings buyers from Chicago and other points, who pay good prices, the sales increasing every year.

Fine stock is a specialty with some, they breeding for sale. We have, in cattle all the improved breeds except Polled Angus and Aberdeens.

In sheep, the tendency is toward the mutton breeds, Chicago being a near market for good carcasses and lambs.

Hogs.—We have all the kinds bred by good farmers. All have their advocates. The white hog, the Victoria, originated in this county, and have been prize winners wherever shown.

Floral Hall, headquarters for women's work, was attractive and well arranged, the management being left to some of our energetic women.

Poultry exhibit not as many entries as last year.

Fruit in small supply; early frost and a general poor year for fruit.

The trotting and running races were excellent. Some object, we know, but almost every one (the wives and daughters, many of them,) being eager spectators, it shows what a hold a good horse has on the "loves and likes" of our people. They inherit it. Go back a thousand years and our Saxon ancestors pictured their "god" Woden riding a horse like a wild Mazeppa; then there is the legend of the horse shoe, all "for good luck," centuries old, all about a horse. As a people we like speed, pluck and daring. So it goes—we can not help it.

Tiles are made at Lowell, Hobart and Crown Point. The demand is increasing, and many will be laid in 1884.

Roads.—Our greatest hope for good roads is in tile draining, and men specially paid and employed six months in the year to keep them in repair.

Corn.—We shared in the general poor crop of the Northwest—some exceptions.

Dog Law.—Depends on the Assessor to get the tax.

The coming fence—barb wire, and we shall insist that Congress shall put no tax or obstacle in the way of getting it cheap.

Stock running at large.—Here every farmer takes care of his own stock.

Our exports are dressed beef, from the slaughter house of G. Hammond & Co., of Hammond, which is shipped in refrigerator cars to cities East, and to Liverpool, London, Glasgow, etc. Over 100,000 head were killed there during the last year—1883. From the same town on the Calumet is sent oleomargarine, high wines, vinegar, hides, tallow, fertilizers, condensed blood and steel springs. From the farms of the county, dairy butter and cheese, fat cattle, hogs, sheep, wool, cows, timothy and wild hay, milk, oats, corn and calves.

Large quantities of brick are shipped from Hobart to Chicago.

Statistics.—We can not get along intelligently without them. Hope the system will be perfected.

GEO. I. MAILLET, Secretary.

LAPORTE COUNTY.

The Laporte County Agriculture Society having been dissolved by the Laporte Circuit Court and placed in the hands of a receiver, the Laporte County Agricultural Association was organized, and elected their officers on the 3d of March, 1883, and held their First Annual Fair on Fair Grounds, near the city of Laporte, Ind., on September 18th to 22d, inclusive, it being the thirty-second annual fair held in the county.

The fair was in every way a success, the attendance was very good, and much more interest than usual, especially in the Woman's Department, was manifested. The association paid out nearly \$2,000 in premiums, and there were nearly 600 articles entered for premiums, besides a number of articles on exhibition not entered for premiums. The display was the grandest and largest made in the county for years; the breeds of stock have been largely improved, and a large number of the farmers of Laporte county pride themselves upon their thoroughbreds.

The woman's department is managed very ably by the ladies, who have their own corps of officers and superintendents. Their display of needle, crochet and fine arts surpassed any thing of the kind ever seen in our county. The exhibit in the mechanical department attracted general attention, especially the excellent display made by our carriage and wagon manufacturers, the machine and separator works of M. & J. Rumely, and the Brooks Bros., of our county. In consequence of the partial failure of crops, the exhibits of the products of the farm and orchard were not as good as usual. The crop of oats and hay was the largest ever produced in the county, while that of wheat and corn was very much below the average yield. The horses, as usual, were the leading attraction. Our horse breeders and importers, as a general rule, endeavor to raise heavy draft horses as more suitable for the general markets, and find ready sales at good prices in the Chicago market, and for shipment to the Eastern cities or markets. Our principal breeders, the Door Prairie Live Stock Association, importers of Clydesdale and the English coach horse, or Cleveland Bays, and S. Crumpacker & Co., importers of Normans, have added to their now choice selection of horses by importing from the best horse provinces of France, Scotland and England, many rare and choice animals.

The show of cattle was much better than usual, several herds being among the entries, including Holsteins, Jerseys, Short Horns, and other choice breeds, and the show of sheep and hogs was the best for years.

Our county is in a very prosperous condition, good roads, good buildings, good fences, with farms well stocked, good schools and churches, and best of all, a large proportion of the farmers are out of debt, the prosperity of the county and the little demand for money is attested by the fact that there is an accumulation of the school funds unloaned lying idle in the vaults of the county treasury, which the Auditor is unable to loan, amounting to \$30,000.

Our new Agricultural Association, which was organized on the joint stock plan, is in a healthy and prosperous condition, starting out with *nothing* to commence with they have expended almost \$1,000 in good, substantial improvements, paid all premiums in full, are now out of debt, with almost \$200 in the treasury.

GEORGE C. DORLAND, Secretary.

MADISON COUNTY.

The Sixteenth Annual Fair of the Madison County Joint Stock Agricultural Society was held at Anderson, commencing September 3 and ending September 7, 1883. In every respect it was the best fair ever held here. The show of cattle, horses and sheep was very fine. The show of swine could not be excelled. The visitors all said the show of sheep and swine was the best ever seen at a county fair. The poultry exhibit was not up to the exhibit of former years, although the quality could not be better. Thos. S. Pottage, of Indianapolis, was judge, and gave entire satisfaction. Floral hall was, as usual, the center of attraction for the ladies, there being 724 entries in the hall. The show of vegetables and fruit was the largest and finest ever seen at a county fair here. The grain and seed exhibit was very fine. Our machinery hall was, as usual, full, and a great attraction for the farmers, as they could see all kinds of farm machinery in motion, being run by steam power.

The corn and wheat crop of this county this year was not up to the average; too much rain and early frost. The fruit crop was almost a failure. Potatoes could not be better in quantity and quality this year. Hay good. Rail fences are in a large majority in this county; some hedge and barbed wire. This county has improved more the last year than for many years—new court house, new free pikes, and private buildings. Our city has also advanced in improvements; many new houses and the fine new theater erected by Hon. C. I. Doxey, which would be a credit to a city much larger than ours. We think it will be but a short time until we will have as fine a town as there is in the State, in fine streets and buildings.

C. K. McCULLOUGH, Secretary.

MARION COUNTY.

The Marion County Agricultural and Horticultural Society, during the year 1883, has held monthly meetings, in which various subjects in agriculture and horticulture have been discussed, and many valuable papers read by distinguished writers.

It has been the object of the society to foster and encourage a progressive agriculture. The culture of vegetables and fruits of all kinds has received special attention. In the early spring \$20 was appropriated to the purchase of experimental vegetables and plants—the same being distributed among the members, who tested them and reported the result to the society, returning half the product for redistribution, which resulted very satisfactory, indeed.

The society during the year has held one culinary exhibit, five exhibitions of fruits and vegetables, and one of stock. While the premiums paid in the main

have been small, yet they have been so generally distributed through the county, that we think much has been done to encourage and advance agricultural and horticultural interests.

Our location in the county where the State Fair exhibits annually, makes it necessary to adopt the system of monthly meetings and exhibits of the character outlined above, as the best and most efficient way of encouraging agricultural pursuits.

J. J. W. BILLINGSLEY, Secretary.

MARSHALL COUNTY.

Report of the Farmers' and Mechanics' Fair of Marshall County, Indiana, for the year 1883 :

Our County Fair was held September 25, 26, 27 and 28, 1883. This county has no association or stock company organization as most of the counties in the State have. The fair grounds that formerly belonged to the old joint stock association were sold on an execution of foreclosure of mortgage, and the same were purchased by Messrs. William Scofield and John Seltenright, and are now owned by them, and the fairs of the county are managed and run by these gentlemen without any pecuniary assistance from any source. The County Commissioners refuse to allow them to draw the license fund which the law appropriates to help sustain agricultural fairs and exhibitions. Our fair this year was a partial success. We offered and paid in full as liberal premiums as any other county in this part of the State—larger premiums than can be paid without loss to the proprietors with the patronage they receive from the people of the county. The show of cattle was not as extensive or of as good quality as former years, as the principal breeders were attending our own State Fair and the Illinois State Fair the same week of our fair. Horses and hogs were worthy of especial mention, not for the large number of entries, but for the superior quality of stock shown. Of sheep there was a very creditable show. The agricultural product department was said by many visitors to be much better than that made by any of the adjoining counties, notwithstanding the unfavorable season for producing fine specimens. The ladies' department in floral hall, including domestic manufactures, plain and fancy needlework, floral ornaments, etc., far excelled any exhibition of the kind ever made in the county.

The Assessor's reports for 1883 show an acreage of 45,483 acres of winter wheat sown, which, at an average yield of fifteen bushels per acre, will give this county a yield of 682,245 bushels. The corn crop of the county this year is very light and of an inferior quality. Of oats, the average sown was over 10,000 acres, with a good yield and fine quality. Fruit, such as apples, peaches and pears, owing to the extreme cold winter and late frosts of the spring, was almost a failure. Small fruits made a very fair crop.

Since the enactment of the late ditching law there has been constructed in this

county about 120 miles of ditch at a total cost of about \$80,000. In a very few years we will have one of the best drained counties in Northern Indiana. Yellow River, passing through the county from a northeast to a southwest direction, with a good current, furnishes ample and sufficient fall for successful drainage.

Marshall county is extremely rich and fertile, and its people are prosperous. The better grades of stock of all kinds are fast taking the place of the poorer stock seen a few years ago. Farmers are beginning to see the importance of good shelter and care of stock. The vast forests of timber that covered the surface of the the country here twenty-five or thirty years ago have almost disappeared, and in their places are seen finely cultivated farms with large and comfortable buildings for the shelter of both man and beast.

W. H. CONGER, Secretary.

NEWTON COUNTY.

Our county fair was held September 4, 5, 6, and 7. The weather was excellent, the attendance large, and the show of stock in the various departments, and general interest manifested, evidenced a marked improvement over former exhibitions, and proves conclusively that county fairs do stimulate greater endeavors in the right direction.

The cheapness of the lands in this county, their easy drainage, and great productiveness has attracted the attention of wealthy stockmen, and they are rapidly passing from the hands of idle speculators and being transformed into profitable farms and rich grazing lands. With the present rate of improvement and drainage this county will soon be equal in wealth and productiveness to any other part of the country. The condition of agriculture in this county is improving rapidly. Three tile factories are now in successful operation, and drainage in all parts of the county is almost a mania. Our principal sources of wealth are from the production of corn, oats, horses, cattle and hogs. The soil in all parts of our county is well adapted to growing blue grass, timothy and clover, and fair crops of fall wheat and rye are grown when properly seeded and cared for. The season of 1883 was very favorable for the grass crops, and we harvested an excellent crop of oats, potatoes and apples. The small fruits, grapes, blackberries, raspberries, cherries, etc., were mostly killed by the late frosts of the spring, and the corn crop was badly injured by the early frosts of the fall.

WILLIAM DARROCH, Secretary.

NOBLE COUNTY.

The Twenty-eighth Annual Exhibition of the Noble County Agricultural Society was held on their grounds, at Ligonier, commencing October 17th and closing on the 20th. The exhibits in all the different departments were somewhat less than 1882, owing to the extremely bad weather. It rained almost constantly, except the last day, which was so cold that everybody was very uncomfortable, but, taking everything into consideration, the fair was a success.

The horse department was very well filled, the Ligonier Live Stock Association making a very fine exhibit of their imported Clydes and Normans. The Hambletonian stock was well represented from the farm of Latta Bros. and others, and a large number of very fine farm and road horses owned by our thrifty farmers.

Of cattle there was a fair exhibit—not so great a number as we have had, but the quality of stock shown was very fine.

In the hog and sheep departments there were less entries than usual, but the specimens shown were extra fine.

Agricultural hall was moderately well filled, and the ladies' department was exceedingly fine. The ladies deserve much credit for the great interest which they have taken in these annual exhibitions. This department has become a leading feature of our fairs, and will no doubt increase from year to year. During the past year the society has made many improvements, in the way of buildings, for the better accommodation of exhibitors—new stalls for stock and an addition to Floral hall. All premiums and expenses were paid in full, which leaves the society a debt of a few hundred dollars, which will have to be met in the future, but with renewed energy the managers will take hold of the work, and, with the co-operation of our good farmers and good weather, we hope to be able to wipe out the old debt and have a surplus in the treasury.

The condition of agriculture is improving. Large tracts of low lands are being underdrained and reclaimed. Farming is somewhat diversified in this county, grain growing, however, predominates, although stock raising is receiving more attention each year. It is generally thought by our most intelligent farmers that stock should be fenced in.

The crops for the past season are perhaps below the average; wheat about two-thirds crop; oats, potatoes, etc., good; corn almost a failure on account of early frost; apples were a fair crop, other fruits nearly a failure.

The old rail fence still encircles a large number of our farms, but in many places is giving away to board and the barbed wire.

The roads have, as yet, received very little attention, save the filling up of the "ruts," the nature of the soil being such that they are generally in very good condition.

Our farmers are generally prosperous, many elegant residences are being erected throughout the county by them, and a feeling of general satisfaction prevails.

ORLANDO KIMMELL, President.

J. H. HOFFMAN, Secretary.

PARKE COUNTY.

The Fourth Annual Fair of the Parke County Agricultural Society was held at Rockville, Indiana, August 20 to 25.

Number of entries, 1,498.

The cattle and horse department was very fine. In fact in every department the display was very good, it being necessary in some of the departments (live stock) to build new stalls to take care of the same.

Owing to inclement weather during the fair week, the attendance was not as large as expected, yet the society paid its premiums in full, and with fair weather at our coming fair will be able to pay the indebtedness against the society, which is comparatively small.

Crops.—Wheat two-thirds crop. Corn average crop, but owing to the early frost and high water along Wabash river and large creeks (last fall) the corn was considerably damaged. Hay big crop; timothy good, clover damaged some by wet weather.

Drain tiling is used, and a great amount is been put down all over the county.

Fencing.—Wire fence is not very popular among farmers, yet considerable is being used. Rail fence, however, is still used, as the county is pretty well timbered as compared with the counties adjoining us.

Roads.—This county is well fixed in shape of roads, there being no less than fifteen gravel roads in the county, and more under construction.

WM. J. WHITE, Secretary.

PIKE COUNTY.

The Thirteenth Annual Exhibition of the Pike County Agricultural Society was held on the society's grounds, adjoining Petersburg. It commenced on Monday, Sept. 3d and closed on Saturday, the 8th.

The receipts were	\$3,581 30
Expenditures	2,553 60
Net surplus	\$1,027 70

Our fair was a decided success. There was a much larger attendance than at any of our previous exhibitions, and a greater interest was manifested by all, but more especially by farmers and stockmen. The result was that the entries in every department were largely increased. The display of horses was exceptionally good both in number and quality. In mules, cattle, sheep and swine, it was scarcely up to our expectations, but very creditable. There was a large increase of entries in the agricultural and horticultural departments, and a decided improvement in the

articles exhibited. Our floral and art hall was filled to its utmost capacity. The articles displayed were both elegant in design and execution. This, combined with a very large collection of rare and beautiful flowers, made the hall a place of great attraction. In this connection I think fair companies should give liberal premiums in this department for the purpose of encouraging the ladies, who, as a rule, are but poorly paid for the time and trouble taken in making the beautiful and tasty articles, the exhibition of which does so much towards making our fairs a success. Another reason for increasing the premiums in this department is, that the display has a tendency to cultivate a taste for the beautiful both in art and nature, which will certainly have an elevating and humanizing influence on all. In regard to agricultural production: The wheat crop in Pike county was very light, not averaging over eight bushels per acre, it being the poorest crop raised for years; the quality of the grain was fair. The corn crop was over an average, but a large amount of it is soft; it did not mature. There was also a large quantity of corn lost in the White river bottoms by an overflow in November. The grass crop was much above the average, and saved in good condition. The yield of oats was good. Rye and barley are not raised to any extent in this county. We had a very abundant crop of potatoes. Tobacco, which is extensively raised in the south part of our county, yielded well and was saved in good condition. Notwithstanding the partial failure in the wheat crop and the damaged condition and loss of corn, our farmers, as a rule, are in a good financial situation. They generally have money ahead and pay as they go. They are turning their attention more to the raising of stock than formerly, and the result is that more of the lands are set to grass. All grasses succeed well here. It has been the usual custom to sow timothy and clover mixed for both hay and pasture. The objection to this mixture of seeds is that before the timothy will do to cut, the clover is badly damaged by being over ripe. Some experiments have been made here by sowing clover and orchard grass together, and it has succeeded well, as they are ready to cut at the same time in June. It makes a superior hay, and, it is contended, is much better for grazing than timothy and clover.

This county is well adapted to the business of stock raising. It is well watered, and the celebrated Kentucky blue grass is indigenous to the soil. It grows luxuriantly wherever the timber is cleared off sufficiently for the sun's rays to reach the ground. It soon forms a compact sod. This grass is superior to all others, both for summer and winter grazing.

There is a marked increase this year in the number of elegant and substantial farm residences that have been erected. The farmers also realize the importance of sheltering their stock in the winter, and the result is that commodious barns and sheds are now the rule. A few years since it was the exception. As to roads, there is no improvement in their condition, or the manner of working them. As everybody is interested in having good roads, and as the present system of road improvement is a failure, I would suggest something like the following plan, more with a view of directing attention to the subject than with the expectation that it would be adopted: Make it the duty of the County Commissioners to appoint some competent person to make plans and specifications for the improvement of all permanent roads in the county. This plan should establish the grades, and secure

the necessary drainage by ditches and underdraining with tile, and with suitable outlets. It is not expected that this plan could be carried out immediately. It might take several years, but let the work on the roads from year to year be applied with a view to bring the roads to the grades established, and secure perfect drainage. Again, I think the roads should be improved by a direct tax, and that the privilege of working out the tax be abolished, and that all road work by hands without compensation should cease. It is a great hardship on poor men, and results in very little benefit to the roads. As to the details or manner of carrying out this plan for road improvement if it should be adopted, I apprehend no difficulty in securing the proper agents.

The importance of drainage is fully realized by our farmers, and a very considerable amount of underdraining has been done within the last year. In regard to timber culture, while nothing has been done in this line in our county, there is much more care taken to preserve our forests than formerly. The wanton destruction of timber has ceased. Again the general use of coal, not only by manufacturers, but for fuel, is a great saving of timber. It is exceedingly hard to make men see the importance or necessity of plenty of forest trees, who have made farms in a heavy timbered country like this. They have been engaged all their lives in trying to get rid of trees, stumps and roots, so that they could cultivate their lands with satisfaction and profit. I fear very little tree planting, except for fruit and ornamental purposes, will be done in this section during the life of the present generation.

In regard to stock laws, the better class of our farmers in this county keep their live stock within their own inclosures, never turning any stock out on the commons. They of course favor a law compelling every person to fence in their own stock. The opposition to this law is principally on the ground that it would operate oppressively on the poor man, but as a matter of fact there is but little pasture in this section outside, nearly all the land being inclosed. The benefits, therefore, of letting stock run at large is of little value to any one, while on the other hand, the expense of keeping up and maintaining fences to keep stock out would more than pay for all the stock that runs at large each year.

In regard to dog laws, I am satisfied that the law on that subject that was repealed by the last Legislature, with some amendments which I suggested in my last report, would have resulted in ridding the State of worthless dogs, and therefore encouraged the raising of sheep. Under the operation of the present law dogs will increase and the taxes decrease, for it frequently happens that the man that has the most dogs neither pays taxes on them or anything else. The result, I fear, will be that farmers will have to abandon the raising of sheep, on account of their destruction by dogs, and no money in the treasury to pay for them.

As to statistics, if they are correct, especially as to the quality and quantity of agricultural products produced for any given year, they are valuable to all classes, but the statistics as made upon blanks by Township Assessors, they are very misleading; indeed, as a rule, there are no reliable facts or information to be had from them.

Since my last report the Straight Line Railroad has been finished from Evansville to Washington, on the O. & M. railway, and will be rapidly pushed forward

to make eastern connections, perhaps to Indianapolis. We have now two railroads running through our county, and also another railroad which will be completed in the near future, connecting Petersburg, the county seat of the county, with Vincennes. The completion of the two railroads I before mentioned, has directed the attention of emigrants and capitalists to our rich soil and inexhaustible beds of superior coal. The result is that our county is rapidly filling up with the best class of citizens. Our coal mines are being opened and operated to a very considerable extent. Manufactories of various kinds are being established. Of course this branch of industry is in its infancy, but if abundant coal and timber at a mere nominal cost and cheap transportation by both the rail and river have the effect I think they will, Pike county in a few years will be a large manufacturing center.

In conclusion, I wish to say that I am satisfied no county in the State can offer greater inducements to emigrants than ours. We have a rich and productive soil that can be purchased at reasonable rates, inexhaustible beds of coal, abundant timber, and it is exceptionally healthy. And further, the moral and religious element are decidedly in the ascendant and the result is that we have good society, and law and order, as a rule, prevails.

GOODLET MORGAN, Secretary.

PORTER COUNTY.

I herewith submit to your honorable body a report of the Porter County Agricultural Society. Porter county is bounded on the north by Lake Michigan, on the east by Laporte county, on the south by Jasper county, on the west by Lake county.

It contains almost every variety of soil. The northeastern portion was formerly heavily timbered with linden, oak, walnut, maple, beech, hickory, ash, and elm but is now being extensively cleared into fine farms, the soil being generally a black loam with clay subsoil, the residue portion being light barrens, with sand and clay soil, producing certain good to fair crops.

Our farmers are now adopting a more thorough system of farming, using the most approved kinds of farm machinery, and giving special attention to the rotation of crops, the growth of clover, as a fertilizer, and making use of all manure on the farm. As land increases in value, more attention is being given to the drainage of wet lands, using more tiling, whereas formerly open ditches were made.

In fact, a needed reform is being put in practice, such as erecting proper buildings for stock, grain, hay, and farm machinery, and using the land for what it is best adapted. Consequently, dairying interests are being encouraged; cheese factories and creameries are starting. We have twelve of the former, some of which are being furnished with the milk of 250 to 300 cows, and the latter are gathering cream for miles around them. Our dairymen are also looking well to the breeding of cows best adapted to their purpose, grading with Holstein and Durham breeds for quantity of milk and Jerseys for quality of butter.

Of horses there is a general interest given to the breeding of good stock, grading from the Norman and Clydesdale imported horses for heavy draught, and Morgans and Hambeltonians for road purposes.

Of sheep, the long-wools and Merino are bred, the former preferred.

Of hogs, the Poland China is mostly bred; the raising and fattening of hogs is quite largely engaged in. They are shipped alive to the Chicago yards, as railroad accommodations for shipment are very convenient, there being nine railroads passing through the county convenient to all localities.

Our principle farm products are wheat, corn, oats, potatoes, timothy, grass, and cloverseed. Fruits of all kinds, excepting peaches, which are liable to winter kill.

Of wheat, the Egyptian and Foults are mostly sown. The yield and quality not good the past season. The average about twelve to fourteen bushels per acre; price, 90 cents to \$1.

Of corn the yellow and calico (or varigated) are esteemed best. The yield on dry soil, fair; on moist flat land, poor; price 26 to 40c.

Of oats a very large, fine crop; average yield about 45 bushels per acre; price 26 to 35c.

Of potatoes the Early Rose and Snowflake for early, the red and white Peach-blows for late, are mostly raised. Yield medium, quality extra fine, very large and perfect.

Fruits of all kinds were injured some by the late frost; about half crop.

Our Agricultural Society is in a prosperous condition. We have improved our grounds, such as enlarging buildings, putting up more stalls, pens, wind-mill, etc. We have 20 acres of ground, fine half-mile track and judges' stand; art hall, 20 by 60 feet, with wings 20 by 40 feet; agricultural hall 20 by 60 feet; 78 box stalls, 28 pens, and dwelling house.

Our grounds are just out of the limits of the City of Valparaiso, the county seat, which is flourishing, having a Normal School, with over 2,000 students in attendance, one graded school with 600 pupils, and three railroads passing through the city. A court house to cost \$150,000, and two churches to cost \$100,000, are being erected.

E. S. BEACH, Secretary.

POSEY COUNTY.

The Posey County Agricultural Society held its Twenty-fifth Annual Fair on September 11, 12, 13, 14 and 15, 1883, on their fair grounds near New Harmony, with fine weather, and a large attendance of people during Thursday and Friday, and the best and largest display of live stock ever seen on the grounds.

In January, 1883, the amphitheater was totally destroyed by fire, and there being no insurance and no funds on hand, the society decided to rebuild by borrowing the money, and the sum of \$1,650 was borrowed, and a larger and more comfortable amphitheater, 300 feet long by 22 feet wide, erected. There were also

other improvements made on the grounds, the whole amounting to \$2,000. After paying the premiums in full, and all expenses and improvements, it leaves the society in debt \$1,700. We now have the buildings insured, and with good weather during our next fair, which will commence on the 9th of September, 1884, we hope to pay off a good portion of this indebtedness.

Posey county will again prove the banner agricultural county of the State. Her wheat and corn crop, fruit and vegetables, have turned out more to the acre than any county in the State for the year 1883.

There has also been a great improvement in stock in the last year. A number of thoroughbred trotting, draft and race horses, also Durham cattle, sheep and hogs, have been bought by our farmers. There have been more sheep killed by dogs within the last year than for three years previous. Is it not possible for our Legislature to enact a law that will protect sheep from worthless curs? How would it do to take the dogs to the State House during a session and have them talked to death?

The stock law is generally enforced in this county, and gives satisfaction.

There is yet sufficient timber for all ordinary purposes, the stock law enabling farmers to do with less fences. The fence made with palings and wire is coming into general use, and requires but little timber, and any kind will do. It is the cheapest fence yet introduced, and easily repaired.

Underdraining is becoming very popular, and four tile factories in the county are kept busy, and the results very satisfactory. The overflow of the Wabash damaged considerable corn, but most of it was secured in good condition. It is the heaviest crop ever raised in the county, and is selling at thirty-five cents per bushel in the ear; that damaged by the overflow sells at twenty cents.

What with growing clover for a fertilizer, and underdraining, and surface ditching, the farms are improving every year, and no fears are entertained of a failure of crops in this county.

The branch of the Peoria, Decatur & Evansville railroad, running to New Harmony, passes through the corner of the fair grounds, and passengers are landed at the entrance gate. The road is doing a thriving business in both passengers and freight, and is a great convenience to persons visiting the fair, many coming from Evansville, Poseyville and Stewartsville. The trains arrive at 9 A. M. and depart at 5:30 P. M. every day, making close connection at Stewartsville with the main line.

FRANK D. BOLTON, Secretary.

PUTNAM COUNTY.

During the past year there has been the usual satisfactory degree of agricultural advancement in this county. Active, intelligent management of farms is visible everywhere. The majority of farmers having brought their fields into good working order, are now beautifying their residences, and as a result the view that meets the eye of passing travelers is one of quiet beauty.

The spans of powerful draft horses drawing heavy loads, the clean-limbed carriage horses, tastefully harnessed, and the "fox trotting" saddlers, are met with every day upon our well kept highways. The fat, well rounded Durham bulls and cows, and the fancy woolled sheep are always to be seen quietly grazing upon our blue grass pastures. The same degree of improvement is also apparent in the droves of hogs fattening for market.

The cereals produced in this county rank high among the improved varieties. Of corn the yellow variety is largely the favorite, and of wheat the Fultz comprises about four-fifths of all produced. Clover and timothy fields give large returns every year, and their propagation is regarded as a very important feature of farming. Stock grazing is the leading occupation, though the cultivation of grain is steadily increasing. It is largely owing to the situation, of course, as to which of the above branches of industry prove the more remunerative. Along the water courses grain growing should, and does, predominate, but the upland farms are, for the most part, better adapted to grazing. Some of the latter, however, produce crops, of wheat, for instance, that are just as good as those harvested from bottom fields, both as regards quality and quantity.

The hedge fence is evidently becoming the favorite kind of barrier among our farmers. Its general use assumes larger proportions as the supply of rail timber decreases. The number of tile factories erected throughout the county, together with their steady numerical increase, is sufficiently indicative of the favorable view our farmers take in regard to tile drainage.

Other matters pertaining to agricultural improvement might be noted here, but they would be simply a repetition of those contained in former reports, hence they are withheld. The efforts of the officers and a few patrons of the Putnam County Agricultural Society to enlist the people in a hearty support of our annual fair have proven futile for some years past. New officers have now been elected, and we trust that to them may be cordially extended that patronage which was withheld from the retiring officers.

A. O. LOCKRIDGE, Secretary.

RANDOLPH COUNTY.

The Thirteenth Annual Fair of the Randolph County Agricultural Society commenced on the 11th day of September, and continued four days. The weather was pleasant, which is always an important factor in the success of agricultural fairs. We had an increased attendance over former years, and our entries exceeded in number any of the former exhibitions held by this society.

Most of the departments were full, and some were crowded. While the society built forty new horse stalls, we had still more horses on exhibition than we could supply with stalls; and to speak of the quality would be entirely unnecessary, only to mention the fact that Col. Bridgland, of Richmond, showed three of his imported Normans; W. T. Botkin his imported Norman stallion, and several other parties showed imported horses equally meritorious, while the usual number of fast horses were on hand, and we had some closely contested races, which may or may not elevate the standard of agriculture, and are a necessary evil which can not will be dispensed with.

In the cattle department the Durhams predominated, with some very fine specimens of Jerseys for contrast.

Hogs.—The exhibit was good, and the breeds on exhibition were Berkshire, Poland China and Jersey Red. The Poland China exhibited by Brown and Hinshaw had taken quite a number of the ribbons at the Ohio State Fair, and the Chester Whites, which filled the pens here and took the ribbons, were successful at our State and the St. Louis fairs.

In sheep we had seventy entries, mostly owned and exhibited by I. J. and W. Farquhar, who have already attained a well-known reputation throughout the State as successful breeders. Some of the premiums, however, were closely contested by Wilson of Blackford county; Sam Crampton, of Wayne; W. T. Watkins, of Collett Station, Jay county, and Wm. Demory, of this county, all of which succeeded in securing some of the ribbons. It was the desire of some of the exhibitors in this department to have the sheep judged according to the rules adopted by the State Wool Growers, and the society secured the services of Cal Darnell to act as judge, and he performed the difficult task to the entire satisfaction of all exhibitors.

Poultry.—We have a few genuine "chicken fanciers" in this county, and they favored us with a good exhibition. Mr. Botkin made some fifty entries in this department.

The agricultural department was full, and the show was exceedingly fine. Never before were so fine and large potatoes shown at a county fair in this part of the State. While most of the corn in this section was badly injured by the heavy frost a week before the fair, the show of corn was equal to former years.

The horticultural department was under the management of the Randolph County Horticultural Society, and the show of fruit was exceeding large and fine, showing that a united effort of a few live horticulturists in a community can bring together a display of fruit that would have been a credit to a more pretentious organization.

The mechanical department was equal to former years, and the display of self-binders and other machinery was very extensive, while the Winchester wagon works made a display of wagons that deserve special notice.

Floral Hall, which is next to the "hoss race" in point of attraction at county fairs, was filled to overflowing with some very fine pictures and needle work; and last, but not least, is the speech made by Gov. Albert G. Porter in the fair grounds to a large and appreciative audience. It was carefully prepared, well delivered and was highly enjoyed by all who were so fortunate as to hear it.

Randolph county is keeping up with the balance of the State in improvements. We finished this year over fifty miles of free gravel road, and we now have close to two hundred miles of gravel roads in this county.

There is a large amount of ditching being done in this county under the late law. The farmers use the product of some twenty tile factories. It is impossible for the factories to keep a supply of tile on hand, and the demand increases with each succeeding year, as the benefits of drainage become more and more apparent. The past season had been unfavorable for the farmer, as wheat was not an average crop, while part of the promising corn crop was killed by the early frost, so that it failed to mature, and we find that before we can raise another corn crop we have to import corn to keep our stock.

The potatoes were plenty and the largest crop ever raised in this county, which caused the price to drop to twenty and twenty-five cents per bushel, consequently no one got rich this year in this section by raising potatoes.

The increased acreage and the superior skill bestowed upon culture promises to show a still further improvement in agriculture, so that we can anticipate a glorious future.

D. E. HOFFMAN, Secretary.

RUSH COUNTY.

We herewith give the financial condition, etc., of last fair, the number in each class, amount expended last year, cash on hand, etc.:

The president and secretary of the State Board of Agriculture request from the secretary of each county society a report on the following topics: Comparative condition of agriculture, the kind of farming that predominates, improvements as to buildings, drainage and roads, fencing stock in or out, dog laws, benefits of statistics, etc.

The spirit of progress that animates the farmers of Rush county was never in a more healthy state. The partial failure of the wheat and corn crops, of course, has resulted in some disappointment, whilst the abundant yield of hay, root crops and unusual pasturage, in a community that relies for a profit on a mixed husbandry, raising all kinds of stock, makes slight failures but lightly felt, and gives a new impetus to mixed farming and a continuous improvement in the various kinds of stock, to which our county has already acquired a commendable reputa-

tion. As to improvements, both in town and country, as to buildings and roads, none of her citizens need blush at the result of a comparison with any portion of the State. The benefits of tile drainage and legalized open ditches are fully appreciated, and from the progress already made, added to the progress now under way, the near future will see all the waste places the most productive of the farm. As to fencing stock in or out, I would say that 90 per cent. of the land owners will say, let every man take care of his own stock, on his own premises, and to be protected by law from intrusion from others. Justice and equity say so, the denuded forests say so, the laws on the statute books of the older and experienced Eastern States, as well as most if not all of our Western sister States, say so. Then, why is it not so? Farmers, so long as you neglect your rights and let demagogues abuse your suffrage, who cater to a few votes who antagonize your interests, so long will you be compelled to spend a large portion of the profits of your farms in fencing against what should be declared unlawful intruders. Dog laws can not be other than popular with those who have to risk valuable flocks to the tender mercies of treacherous curs. The millions of acres of cheap sheep lands of the South and West compel the sheep raisers of Indiana to give their attention to mutton sheep, and improve their flocks to the highest standard, that he may produce a first-class mutton sheep, maturing as early as possible and producing as much medium wool as possible, the carcass being the grand object to compete with first-class mutton in all markets accessible to us. For wool alone let the plains and Australia enjoy their facilities, but to our home energetic breeders is due every protection that a rigid dog law can give. As to benefits of statistics, I ask to be excused from attempting a disquisition. That they are in many cases indispensable, none will deny. To the agriculturist a half a century ago they furnished data from which to form reasonable conclusions of amounts on hand. Political economists have written text books for schools establishing theories based on statistical tables insuring certain results; that "supply and demand" would always fix the price, that our bread and meat would always be consumed at their true market value. What of those text books now, and their theories? The boards of trade of our commercial centers laugh at all statistical tables, and put on the market ideal millions of dollars' worth of farm products that never had an existence, which is used to depress the price of the real bushel that industry produced. These truths are patent, and dearly paid for by too many of our greedy populace.

Well, I believe that the next request is that we make any suggestions we think proper. We ask to be excused, and close with a little reminiscence, which I trust should not depress any new similar enterprise. When I speak of the origin of the Rush County Agricultural Society I am entirely dependent on a few old pioneers that still honor us with their presence, and tell us of those paths that have been trod and almost forgotten.

This county was settled mostly by Kentuckians, and although what was called the New Purchase claims to be among the first, if not the first, to organize an agricultural society, no records of their first meetings have come into my possession. About the year 1852 the prominent men of Rush county seeing that the earth was producing up to every anticipation, and that better stock was needed nearer up to the Old Kentucky type, such men as W. S. Hall, Benjamin F. Reeve, John Megee, Judge

Hinchman, and others, constituted themselves managers, and arranged to hold the first fair in 1852. They procured about two acres of ground in the green woods southwest of the court house. It lasted two days, and was a social gathering. In truth, there was but little to exhibit, the greatest attraction being a buffalo that Pearce Griffin had got with some western cattle. Addresses were given by old Father Haven and Benjamin F. Reeve, both men of marked distinction in their day—and their day was until their death—the former mostly officiating as presiding elder, and always ready for any emergency, the latter minister of the now Christian church, and, when called on, a Representative in our State Legislature.

The next fair was held in the woods northwest of town, with increased attractions and additional vim. Now a spirit of independence became visible, and a desire to own grounds of their own was the ruling spirit, when ten acres, where the grounds now are, was purchased of Joseph Lakin, at fifty dollars per acre, which was then considered a fabulous price. Lakin afterward sold the balance of the farm to the Commissioners for a poor farm. The society soon found that they needed more ground, and bought a strip of the Commissioners and added on the east, then a strip of Isaac Patterson, and added on the west. Yearly interest in the fair increased, more land was a necessity, and, through an appointed committee, eleven acres more were purchased on the west side of J. D. Pattison, at \$250 per acre. The demand of the family is still increasing, but I trust the exchequer is equal to all emergencies. The policy that has ever conducted the enterprise of this society has been one that would naturally be characteristic of the prudent farmers who have always constituted the different boards, who have always been prompt to every promise, and paid every premium, rain or shine. We now happily occupy a position, that we have no ground for envy, and feel thankful to a generous public, not only of our, but adjoining counties, for their liberal patronage, which has helped us on to success. As encouragement to the younger portions of the State not yet having perfected an organization for agricultural exhibitions, we say take encouragement, go thou and do likewise, and assuredly success will crown your every effort.

LON. LINK.

ST. JOSEPH COUNTY.

The Northern Indiana Agricultural Society held its Second Annual Fair at South Bend, October 1 to 5, inclusive. The attendance was large, and the entries in all departments good. In live stock classes, the show of horses, cattle, sheep and hogs was very good, and many animals of superior merit competed for premiums. In our speed ring, all of the races were filled with good horses, and added much to the interest of the fair. Our receipts were \$11,745.14—leaving a balance of \$2,929.80 after paying all expenses. At our annual meeting, December 3, 1883, of stock-holders, the name of our association was changed to Northern Indiana and Southern Michigan Agricultural Society. The condition of agriculture in our county is good, with the exception of corn, which is not more than half of a crop, owing to the wet spring and early frosts.

C. G. TOWLE, Secretary.

SHELBY COUNTY.

Our Board of Directors, after two weeks spent in cleaning up and making all needed repairs upon the grounds of the association, opened the gate thereof on September 4, for the purpose of holding her Ninth Annual Fair.

The condition of the weather during fair week being a great factor as to its success or failure, we can not proceed further without paying it a compliment as to its behavior. It was excellent, and all we could expect, consequently our fair was a success—more so than ever, for that expression applies fully to every department in all particulars.

Our live stock department was crowded beyond its capacity, and on the second day we were compelled to commence the construction of forty new stalls, which were completed the next day at noon and all occupied.

As an evidence of the interest manifested and taken in our fair of 1883, we need only refer to our Agricultural Hall, wherein was gathered the products of the farm. Every inch of space was occupied by some article testifying to the merits of soil, muscle, brains and machinery. It was an exhibition worthy of the high agricultural standing of Shelby county, and for which our association is indebted to the farmers throughout our county, who have always put forward their best efforts to make our annual fairs attractive as well as instructive and successful.

The condition of agriculture in our county is undoubtedly progressive, as it becomes more apparent, year after year, our farmers are producing more per acre and of superior quality than in former years. The reason of this is, they are not trying, as their fathers did, to do it all with muscle; but they come to our fairs and exchange ideas and learn and profit by each other's experience and experiments, and what they can not learn that way, they take the *Indiana Farmer*, published at Indianapolis, and make use of its advice, suggestions and instructions; and now, if there was only some machine that could control sunshine, rain and frost (army worms and such, also,) the ultimatum would have been attained, and we could bid defiance to short crops and high prices of "food and fodder."

Some of our farmers made bad mistakes last year (they were not of the Ingersol Bob Moses kind). They require no argument to convince any one of them that they were mistaken in purchasing western corn for seed last spring in this locality. I shall not undertake to tell why, for I have already written all the law requires me to write to secure our association the yearly license fund, and as our delegate to the annual meeting stands waiting for this article as a certificate of authority to represent us, I will stop where I am. As I am not a farmer, but only a secretary, this thing of writing up "the condition of agriculture" is rather an up-hill business.

A. J. GORGAS, Secretary.

STEUBEN COUNTY.

The Steuben County Agricultural Association held their Eighth Annual Fair on their grounds, at Angola, on October 9, 10, 11 and 12. The fair was a complete success. Fine displays in all departments. The weather was fine, and we had an immense crowd on Thursday.

Our wheat crop was about half of a crop. Corn about the same. Hay, oats, potatoes, and apples a fair crop. Our farmers are using more tile every year, and clearing and ditching their swamps and marshes.

BEN. F. DAWSON, Secretary.

TIPTON COUNTY.

The Tipton County Fair Company held its Fifth Exhibition on the company's grounds, near Tipton, on September 19, 20, 21 and 22, inclusive, which was the most successful fair ever held in the county in point of finance and exhibition. The company paid all premiums in full, all their old debts, and had a balance left in the treasury. The company have contracted for twenty acres more land, adjoining the old grounds, which will enable us to have a half-mile track and excellent grounds in every respect.

The horse show was never better. The cattle show was not quite up to the average. The sheep and hog show was never equaled in the county, and fully up in quality to State exhibitions. The poultry show was an average in numbers, but better in quality. The agricultural hall was well filled. The potatoes on exhibition were usually fine. The floral hall, which was under the management of the ladies, was well filled and attracted no little attention. The mechanical department was well filled. (The company has built a hall for this department.) The fairs held in this county get better with each successive exhibition, and the company looks forward to a promising future.

The corn crop was not over a two-third crop, owing to early frost and seed planted which was shipped from Kentucky and Kansas. The farmers have a dear bought lesson, and will be slow to plant seeds that are shipped from States where seasons are longer. The wheat crop was not quite an average, on account of rainy weather. The fruit crop was excellent, there being not less than 40,000 bushels of apples shipped from the county. Free gravel roads, open and tile drains are being extensively built, and all kinds of other improvements. We have as fine a soil as is in the State, and Tipton county is fast taking the place that rightfully belongs to her as one of the leading agricultural counties of the State.

WM. BARLOW, Secretary.

VIGO COUNTY.

In submitting this annual report, I ask your kind indulgence. Since my election as Secretary of the Board of Directors, I have had to encounter many difficulties in making the annual report as required by law. On account of sickness, the late secretary has been unable to turn over to me the books in a manner in which they can easily be understood.

Upon examination of the books of the society, I find that on September 7, 1867, the society leased of Vigo county fifty-one acres of ground, two miles east of Terre Haute, for a term of twenty years, rent free, on condition that the said society hold a fair upon said grounds annually, and commits no waste upon the same. The said records further show that up to the present time the society has issued about 160 shares of stock of the face value of twenty-five dollars each, and at the present time is in debt to the extent of \$2,100. A year ago the newly-elected board individually signed a note for the amount named, but this year their successors have refused to do so, pending a petition to the Board of County Commissioners to extend the lease for the term of fifty years. As the Board of Commissioners do not meet again until March, it is not expected that the matter will be definitely settled before that time, and on their action undoubtedly depends the future success of the Vigo Agricultural Society.

Up to the fair of 1881 the Board of Directors adopted the plan of paying the running expenses of the fair out of the receipts, and dividing the balance *pro rata* among the exhibitors. This proved a great obstacle to success, and in the year last named it was determined to pay all premiums in full. The indebtedness the first of paying in full was \$750, and since that time it has increased to \$2,100. Last year the failure of the fair to prove a success was owing in a great measure to the failure of crops in this section, which were the poorest known here for a number of years. In this county the area of wheat was twenty-five per cent. short of the year previous, while the yield was less than one-half. The corn crop was fair, but was late. Vegetables were also backward, and the fruit crop in this section was almost an entire failure.

In this district the farmers are principally devoting their attention to the cultivation of wheat and corn. During the past few years the increased yield of wheat has induced most of our farmers to increase the area sown with that cereal. Last year, however, much wheat was plowed up and corn planted in its stead, while a considerable acreage of wheat was not cut at all on account of the poor yield. Of the wheat cut the yield averaged from six to twenty-five bushels per acre, while the average of the corn yield will make as good a showing as that of any other region in the State.

In regard to farm buildings it is a noteworthy fact that Vigo county is coming rapidly to the front. Her farm houses are improving from year to year, and at the present time will compare favorably with any in the State. The farmers are also paying more attention to drainage than heretofore, and it is rapidly gaining in favor and practice.

The question of stock running at large is one upon which there is a diversity of

opinion. In some localities in the county it is allowed to run at large, while in others the owners are compelled to keep it within an inclosure. In the city of Terre Haute stock is allowed to run at large, except during the hours of night, but it may be said that the night proviso is a dead letter so far as its enforcement is concerned.

The present dog law gives pretty general satisfaction in this county. While some complaints may be heard in regard to it, it may be said that its benefits overcome its shortcomings.

With proper encouragement there is no reason why the annual fair of the Vigo Agricultural Society should not be one of the most successful of the State, and if the Board of County Commissioners will contribute their share in extending the lease to the grounds, the Board of Directors will do all in their power to make as successful as the most enthusiastic citizen of Vigo county could desire.

WILLIAM H. DUNCAN, Secretary.

WABASH COUNTY.

The Thirty-first Annual Exhibition of the Wabash County Agricultural Society was held on the fair grounds in the city of Wabash, September 11, 12, 13 and 14, 1883, and was a success in every respect. The weather being favorable, the attendance was unusually large. The displays were fine, all of the departments being well filled, and more than common interest being taken by the exhibitors.

The horse department was well filled, and the best display that has been since the organization of the society, there being 368 entries, among which the Blue Bulls, Normans and Clydesdales were exhibited by Messrs. Landers & Harter; Knox and Clydesdales by Josiah Thorn; Normans and Membrinos by Fleming, Burns & Co.; and a standard bred Hambletonian by Messrs. DePuy, Busick & Hazen, the latter, a very fine stallion, was bought the past season in Orange county, N. Y. The display of colts was unusually fine. The cattle entries were not as large as last year, although there were some fine herds on exhibition. The herd of Holsteins shown by W. S. Stitt attracted a great deal of attention. The herds of Short Horns exhibited by Messrs. Mason & Wilhoit came in for a share of the premiums. The herd of Jerseys shown by Messrs. J. D. & J. D. Conner took most of the premiums in the Jersey class; they also secured a share of the State Fair premiums this year. The hog and sheep display was immense; about one hundred new pens had to be constructed for their accommodation. The poultry show was good. Agricultural and mechanical halls were well filled with exhibits. In the women's department the display was fine; the hall was filled to overflowing.

The wheat, corn, oats, hay and potato crops in the county were of an average this year. Apples were abundant—plenty for home consumption and a surplus shipped to other markets.

FRED. J. SNAVELLY, Secretary.

WARREN COUNTY.

The Warren County Agricultural Joint Stock Company held their Tenth Annual Fair, at West Lebanon, Ind., September 11 to 14, 1884. Financially, our fair was a success, there being a balance in the treasury of more than \$300, after paying all premiums and expenses in full. No doubt but that our fair would have been better, had there not been a feeling among our people on the temperance question. Our directors permitted the sale of intoxicating liquors, and also gaming, and this kept a great many of our best citizens away, but at our next fair we will not have these two evils to contend with, as our directors resolved by unanimous consent, at their last meeting, not to allow gambling, or the sale of any kind of intoxicating liquors during our next fair, on the grounds.

At our last fair the show of horses compared favorably with that of former years. Cattle department was represented by three herds, and a number of miscellaneous entries.

Swine.—Number and quality excelled that of any year since the organization of the society, Poland China and Jersey Reds taking the lead, and Berkshires being well represented.

Sheep and poultry were sadly neglected, there being only a few entries in these departments.

Though liberal premiums were offered in the speed ring, the racing was only ordinary, on account of the bad condition of the track.

The exhibits in the floral and agricultural halls were splendid.

The yield of wheat in this county last year was about two-thirds of an average crop, graded in quality principally No. 3.

Corn crop on our prairies only a half crop, on account of too much rain in the spring, and early frosts in the fall; but on our timber land, and river bottoms, more than an average.

Oats fair; about thirty bushels per acre.

Apples, pears, and small fruits abundant. Root crops the best that ever was known in the county.

No kind of diseases prevalent among stock.

Farmers are turning their attention more and more each year to tiling. There are twelve tile factories in operation in the county, and they are run to their utmost capacity to supply the demand.

Timber not being plenty, wire and hedge are used for fencing, especially on our prairies.

W. S. FLEMING, Secretary.

WARRICK COUNTY.

It is a pleasure, as well as my duty, to submit the following report of the Warrick County Agricultural Society:

Our Twenty-fifth Annual Fair was held on the grounds, near Booneville, October 1st to 6th, under unfavorable circumstances. Yet we are glad to say that the farmers of this section are fast getting out of that old "fogy" notion, "that any one can farm, whether educated or not." To this end we can say that the farmer, as a general thing, is becoming more intelligent by the reading of different books and papers relating to his business. He has been brought to realize the fact that the best way to make a successful farmer of his boy is to educate him in the various branches pertaining to agriculture. He can also realize that the great mass of people are dependent upon the farmer. Meetings are being held throughout the county for the purpose of discussing agricultural interests.

The raising of grain predominates, wheat and corn are the leading articles. Grazing is becoming a subject of great interest among the better classes of farmers.

The subject of under-ground drainage is a subject of much importance, several large factories have been erected, to the great advantage of the people. We have an abundance of timber in our county, and the farmer is well aware that his timber is of great importance. Yellow poplar, walnut, beech, white oak, maple, hickory, and various other kinds are abundant in this section. Coal is an object of great interest in our county, and can be found at most any point. Along our railroad we have a great many mines that are doing a large business. Building stone is quarried in various parts of our county.

In traveling through the county we notice a great many new buildings in the way, dwelling houses, school houses, barns, and such-like, indicative of prosperity and civilization. The agricultural products of this county for this year have been good, corn in some sections yielding seventy bushels per acre, and along the Ohio, perhaps more. Wheat was a fair average, and sold at \$1. Clover seed was above an average. More seed produced in the county than for a past number of years put together. A very large acreage of potatoes was raised. This section of the country is becoming famous for potatoes. Hay an average crop. Cattle, sheep and hogs commanding fair prices.

The cattle show at our fair was good. Dr. Langdon, of Vincennes, had a fine herd of Short Horn cattle, which proves to us that the Short Horns are the cattle for this country. Mr. Crawford, of Oakland City, represented the Devonshire cattle. He had quite a valuable herd, a herd that one would be proud of at any fair. Two valuable herds of Alderney cattle were shown; besides a great many of our home farmers had quite a number of cattle.

Horses, some of the best stallion rings that were ever shown on our fair grounds were shown this year. Mr. George Agniels, of Princeton, was here with his Clydesdale horses; Mr. French and Mr. Peter Taylor with some French draft-horses, and many others representing good breeds of horses.

There was no question but that we had the best sheep show that we ever had, all breeds, being well represented. A good line of hogs and poultry were shown. All the halls were well filled.

Financially, as well as otherwise, our fair was a success. We have in the treasury about \$1,200, and have bright hopes for the future.

"As the earth is the source of great wealth," and "knowledge the source of all power," we hope that all will heartily unite in the advancement of a liberal education of the sons and daughters of the farmers of this State. To all agricultural societies and our neighbors we extend a hearty welcome.

S. W. TAYLOR, Secretary.

WASHINGTON COUNTY.

The Third Annual Exhibition of the Washington County Fair Association was held on their grounds in Salem, September 17 to 22, 1883, and although a neighboring county held its fair the same week, we had a better show than ever before, and very successful financially. We paid \$1,850 in premiums, \$512 expenses, and had a surplus of \$248 to apply on our funded debt, on grounds and improvements. The entries in all the departments were 1,589, against 1,209 in 1882, and 1,081 in 1881.

The growing popular feature of our fairs, and one generally well represented, is the horse department, in which this year the exhibit was about equally divided between fair representatives of the Norman and Clydesdale in the draft classes, and the crosses of thoroughbreds and various strains in the general purpose and light harness classes. Our show of cattle was a decided improvement over former exhibitions. There were herds of thoroughbred Short Horns, Herefords and Jerseys on the grounds that showed points of high breeding in a remarkable degree. The Cotswolds, South Downs and Merinos were well represented in the sheep pens, while fine specimens of pure Berkshires and high grade Polands filled the hog pens to overflowing. The poultry show was not very good. There are quite a number of poultry breeders in the county, and they should have taken more pains to have made their part of the show respectable. A great deal of fine stock of all kinds has been brought into the county the past year, and our more enterprising farmers are building up as fine studs, flocks and herds as the country produces, and the results are very encouraging. There was an abundance of farm products on exhibition, and all of excellent quality. Our fruit show was all that might have been expected of a county that ranks first in the State in peach growing and stands near the head of the list in producing apples. Although we offered liberal, if not large, premiums in the speed rings, our races were void of interest, very few horses outside of the county contesting for purses. One-half the money would have brought out just as good stock. It is true that a large proportion of the patrons of agricultural fairs demand a certain allowance of the national sport, and to exclude racing would, to say the least, be a doubtful experiment; yet in too many of our fairs the speed track—really the race track—is made too prominent a feature. Among the premiums awarded the largest in amount are given to

trotting, pacing and running horses. In former years these trials of speed were merely an incident—a “tail piece”—to the general exhibit of agricultural and horticultural products, implements and modes of culture, and of generally useful domestic animals. Latterly the tail seems to wag the whole dog. Comparatively few of the public spirited men who get up and manage the fairs fully approve of this feature, but a large number deem it a necessary evil. The committee on ways and means reasons that, while the body of staid farmers will come for the sake of the real object of such fairs, the “trials of speed” attract a large floating population from towns and cities who care not a fig for agriculture, but whose admission fees supply the “sinews of war.” This question is a very serious one to be considered by the management of our fairs in the near future. That the fairs in many parts of the country are deteriorating, is certain. Not a few of our best farmers are questioning whether fairs are, on the whole, useful and beneficial to our agricultural interests. Let us consider this matter carefully, and if we do not leave out the racing altogether, keep it the incidental, and not the leading feature of our fairs.

CONDITION OF AGRICULTURE.

The agricultural interests of this county are considerably diversified. We have so many different kinds of soil it is hard to tell which class of agriculture predominates. We have bottom lands along our small rivers and creeks that are inexhaustible for corn, and produce good wheat without the aid of fertilizers. On the rolling lands we have mostly a strong limestone soil, especially adapted to grazing and fruit growing, but produces in paying quantities grain of all kinds, when the land is properly farmed. Much attention is given to the saving and application of manure and fertilizers among our leading farmers, with gratifying results. Commercial fertilizers are largely used for wheat, corn and grass, and farmers are cultivating a smaller acreage than they did formerly, but give it more time and attention, and reap larger profits. The tendency is pointing in the direction of smaller farms, fewer herds, greater diversity of crops, and more careful and thorough tillage. With smaller herds a better grade of stock is kept, and with a diversity of crops the season will have to be one of uncommon drought if the farmers are not self-sustaining, at least.

Green manuring is now commanding a good deal of attention, clover and rye being generally used. There is no doubt but what the fertility of worn-out land may be restored in a few years by an occasional cropping and seeding it to clover. Some assert that seeding a field to clover will do more good than a covering of manure. We can not all manufacture or procure manure for our lands in as large quantities as we can use with profit, but all may clover to their entire satisfaction. Clover performs its work by two distinct methods, viz.: It increases the organic matter in the soil to a greater extent than any other crop, and brings within the reach of other crops a large supply of mineral elements. The root, reaching down through various geological impediments, draws nutriment from deposits far below the utmost reach of surface or subsoil plows, and becomes itself a reservoir of organic richness. The process of decay sets free the elements of growth thus drawn from subterranean deposits, and clover not only becomes an independent crop of

great excellence and profit, but a fertilizer of more value than any of the guanos, phosphates or sulphates of commerce. We think the best rotation of crops for this part of the country is two crops of clover, one of corn and one of oats, seeding at the same time again with clover. An occasional wheat crop may be made profitable, but we very much doubt the propriety of putting it in the regular rotation of crops, owing to its cost and uncertainty.

While our county stands second in the list of those counties in the State having the largest acreage of timber land, the question of fencing begins to be a matter of serious consideration. The most valuable timber we have is being fast cleared out and rapidly disappearing. Walnut logs and tops, the refuse of the past, are now eagerly sought after, and it is only a question of time when the valuable timber, once so abundant, will be extinct in this county for practical purposes, and we will have reached the point that it will be profitable to grow timber. We think our farmers, as a general thing, keep up about three times as much fencing as there is any use of, thereby imposing upon themselves an enormous tax, much heavier than they have an idea of. There are in the United States 6,000,000 miles of fence, that was built at a cost of \$2,000,000,000. It is estimated that \$80,000,000 are annually expended by farmers for fencing alone. This sum is sufficient to eat up a large part of the profits of the farming community, and should be curtailed. Stock must be fenced in, and when land is most valuable inside fencing must be done away with and the soiling system adopted. We can at least adopt partial soiling by using a portable fence, and having small pastures that will afford partial sustenance for cattle and furnish ground for exercise. One acre devoted to a soiling crop, and properly cultivated, will furnish as much food as four acres of pasture. Of course, rails are too plentiful and lumber too cheap yet for the majority of our farmers to think about curtailing expenses in this direction, but the day is not far distant when our woodlands will be fit for little else than fire wood, and necessity will compel a change. We have a few farmers who are now preparing to adopt the soiling system, and they will, no doubt, find the departure a paying one if properly managed.

Considerable money has been spent on our roads the past season, and they have been improved a great deal, but they are not what they ought to be, with stone and gravel, all over the county, at convenient intervals, when it might be put to good use on the highways. We could make the very best of roads cheaper than anybody, and if our farmers knew the great advantages to be derived from better roads they would undoubtedly be more enthusiastic in the cause. Good roads mean good markets at all seasons of the year. With good gravel or macadamized roads those who live eight, ten, or twelve miles away from their county town, or railway station, are not compelled to put their farm products upon a glutted market in view of the fact that for six months in the year they will be obliged to remain at home on account of the mud blockade, just when they might realize the largest profits for their farm produce. It is to be hoped that our law makers will not tinker with the road law now till the efficiency of the present system of road working is thoroughly tested.

A large tile factory has recently been built here at our county seat, which shows that our farmers are paying more attention to draining their lands than formerly. Not only are our wet lands being tiled and brought under cultivation, but some of

our upland farmers are tiling considerably, and find the investment profitable. The agriculturists of the county are vitally interested in bringing every rod of their lands devoted to agricultural purposes to the highest possible productive conditions, and tiling is the first step in this direction.

The past season has been unfavorable for farm operations with us. The unusually low temperature and drought lessened the products of the farm considerably below an average. Probably a year of enforced economy will follow in many farm houses. There is no cloud, however, without its silver lining. A bad year is one in which the results of mistakes in farming are most sharply defined. The most frequent and profitable reflection after a failure of any crop is that if the conditions of soil had been as they should be there would still have been a fair return for labor and seed expended. Most emphatically, during the present season, the good farming alone has proved remunerative. But, everything considered, we think the outlook for agriculturists in this country is promising. While it is true that old farmers, as a rule, are not giving much attention to scientific methods of farming, the young men are. They are making it a study, and are keeping pace with the strides of science by informing themselves through agricultural papers and books, and by actual experiment of the best method of enriching the soil, improving the stock, tending and raising good fruit and economizing time and labor. An increased energy and friendly emulation, brought about mainly by this and other societies, is very perceptible. Much more might be said of the nature, quality and products of our soil, the varieties of our timber, the introduction of thoroughbred stock, and other matters briefly dwelt upon above, but want of space forbids.

In addition to our agricultural pursuits we may add that we have other interests that are not yet fully developed which are fast becoming sources of great revenue to the county. We allude to the inexhaustible limestone quarries and extensive beds of snow-white sand that are drawn upon largely for the manufacture of plate-glass.

In conclusion, we would say that our farmers, as a class, are too much inclined to look upon their own calling as lower than many others in respectability and importance. Under this false feeling they give far less attention to improving themselves and their processes by observation, by reading, by study. They do not wake up to the benefit that science can bring to them as well as to other pursuits; and, with such feelings and ideas imbibed in the home circle, their children are too often on the outlook for some "higher" occupation. Agriculture should be taught in every district school. It is not convenient for a farmer to send his boy to a college, but if that boy can be taught the simplest rudiments of agriculture at the district school which he attends, he will have received an insight into the utility of theoretical knowledge, and he can not fail to respect it hereafter and take other means of improving himself. With a proper interest once awakened, we would soon have experimental farms all around us. This much accomplished, and husbandry will be changed from a dull, plodding drudgery to the business of intelligence and tact. In the ranks of the farmers stand to-day some of the most scientific and experimental men of the age, and the field for their labors and researches is quite as extensive as that of any other calling or profession. Agricultural literature is in great demand, and those who are trying to put the proper ideas before

the farmer are doing a good work. Every State, county, district or neighborhood agricultural association has a grand mission to fulfill in forwarding the interests of the independent farmer.

WARDER W. STEVENS.

WAYNE COUNTY.

The Wayne County Agricultural and Horticultural Society held their last exhibition in Phillips' hall, consequently a general display of agricultural products could not be made. Before the department of agriculture was added to that of horticulture the society held a number of annual exhibitions, and always with good success financially and otherwise.

In 1859 our society took charge of the horticultural department of the Wayne County Agricultural Society, and paid out \$250 in premiums. The society held a fair of its own in 1860. In 1861 it again took charge of the horticultural department of the County Agricultural Society, which was satisfactory and successful. Another exhibition was held in 1862, which netted a handsome balance for the treasury. Several successful fairs have been held since, of which it is not necessary, as I suppose, to particularize.

The society holds regular monthly meetings, in which both agricultural and horticultural subjects are discussed, essays read, and products exhibited. Among the number who have read essays before the society are Dr. Warder and N. Ohmer, of Ohio, Joseph Moore, President of Earlham College, Prof. Wiley, formerly of Purdue University, J. G. Kingsberry, editor of the Indiana Farmer, J. R. Weist, ex-President State Medical Society, Sylvester Johnson, President State Horticultural Society, A. Furnas, President State Sorghum Convention, and many others of ability and education. The displays at some of the regular meetings, in the way of fruits, flowers, grains, and vegetables, are very fine. The society is every year testing new fruits, grains and vegetables, with great success. It has commenced a series of experiments with fertilizers that promise excellent results.

To give a statistical account of the aggregate of crops raised in Wayne county the past year would be to repeat the tables and figures found in our State Report of the Bureau of Statistics. As this information is easily obtained, a brief statement of some of the special interests of the county will be given instead. Prominent among these are her pure blooded cattle and horses. Four years ago a herd of finely bred Jersey cattle created as much interest and curiosity as an ordinary menagerie. Since then the increase of that kind of stock from breeding and importation has been very rapid. Herds numbering from seventy head down to a few individuals may now be found in the vicinity of Richmond, with pedigrees for milk and butter that will compare favorably with any other part of the United States.

The drainage of swamps and wet lands in the county has been carried on for the past few years with great success. Hundreds of acres have thus been reclaimed which are now the very best lands to be found anywhere. The tile draining of the wet clay lands, of which this county has a large share, has rendered them compara-

tively dry and productive. Old, exhausted, and worn-out lands, are being again made productive by the judicious application of fertilizers. The phosphates and bone dust were used by a number of farmers last season with great success, especially on wheat. Clover, compost and stable manure are being utilized more than ever before, which is having the effect of increasing instead of decreasing the fertility of the land.

No town or city in the State is making greater progress in the way of manufactures than Richmond. Among her leading establishments are those for agricultural implements, steam engines and machinery, church and school furniture, coffins, chairs, chains and hames, and pianos. A large trade is annually being carried on with different countries of Europe and South America. One firm sell their articles in ten foreign ports. Another sends from thirty to fifty carloads each year to the Pacific coast. Thus it may readily be seen that the agricultural and mechanical interests of Wayne county are beginning to receive that public consideration their importance demands. The farmers of the county are beginning to appreciate the noble and honorable calling in which they are engaged, and are making the science of agriculture their study, getting out of the old ruts and preparing themselves to answer the question, "*How can I raise the most grain on the least ground?*"

JOSEPH C. RATLIFF, President.

WELLS COUNTY.

The Wells County Agricultural Society held their Seventeenth Annual Fair on the grounds usually occupied by the society, near Bluffton, on September 4th, 5th, 6th and 7th.

We were under the impression during the summer, that we would have a good fair, and the officers worked very hard to obtain a favorable result in advertising, and obtaining attractions, but owing to failure of crops we just merely paid expenses and old debts, paying no premiums whatever.

Our receipts for the year were, \$1,256; expenditures, \$1,232; leaving a balance of \$24.

The horse department was about as usual.

The swine department was the best ever shown here.

The sheep department not so good as last year.

Our specimens of corn, wheat, potatoes, and other vegetables, were extra good this year; our farmers taking more interest.

Floral hall did not have a very good representation this year.

Our wheat crop was about half a crop, but poor wheat; corn crop almost a total failure; potatoes an extra crop; hay a good crop. Oats, a good crop. Our fall wheat looks fine.

DRAINAGE.

Our farmers are still making improvements in the way of drainage. The amount expended in the construction of open drainage for 1883 is about \$116,000, and in location of open drainage about \$10,000.

ROADS.

The improvements in roads were as great in 1883 as in 1882, if not more, and they are still at work.

J. A. WILEY, Secretary.

WHITLEY COUNTY.

Our fair was held on the company's grounds, at Columbia City, October 2d, 3d 4th and 5th, being its Tenth Annual Exhibition.

The last two annual fairs have been comparative failures, both as to those in attendance and the general contour. The stockholders received no dividends, the citizens claiming that it was a speculating scheme for swindling people, but enough courage remained to try again; a new set of officers was elected, everybody was invited, through the papers, to contribute to the enterprise and make it *Our Fair*, and as the time approached it began to be apparent that the better time was coming, and when the time did come Whitley county is said to have had her best annual fair.

Our farmers have no specialties, but all are engaged in mixed farming. On exhibition were noble specimens of wheat, oats, corn, buckwheat, rye, potatoes, cabbage, beets, pumpkins, squashes, radishes, and vegetables usually raised in this latitude. The apple crop was unusually good, and exhibits so numerous and nearly equal that committees could scarcely decide a choice. Peaches were a failure; in fact it is not a peach county, hard freezing often killing most of the trees. Small fruits do well here usually, but late frosts in the spring destroy most of them. Bearded wheats were a fair crop, but most smooth wheats were failures. Oats were a fair crop and excellent in quality. Corn was a failure, caused by cold season, bad condition of seed, etc.

Our best display was in horses and agricultural machinery. All the stalls formerly occupied by horses and cattle were this year occupied by horses, fourteen additional ones having also to be built, entire new quarters being built for cattle. Clydesdale, Norman, English draft, general purpose and speed ring horses were liberally represented.

The display in cattle was fair, the Short Horns leading. Formerly the Jerseys were quite favorites, but as this is not a dairy county, they are not appreciated, on account of their small size.

In the sheep department the Cotswolds lead, with general purpose (grades from English breeds and Spanish Merinos, Southdowns, etc.,) second.

Corn and hogs are an important item in our farming, Berkshire, Poland China, McGee and Jersey Red leading, and now the Chester White is coming back.

Poultry, in great variety and beauty, occupied the entire space allotted to them.

Agricultural, mechanical, fruit, floral and fine art halls were all so well filled that the people of the county may well feel satisfied with these departments.

Two engines were on the grounds during the entire fair, propelling machinery of various kinds for exhibition, and, finally, Whitley county has demonstrated that she can make as good a display in her products as any county in the State, natural facilities being considered.

Red clover and timothy are the principal cultivated grasses—timothy for the low lands and clover for uplands—both are used for stock food, but clover is largely raised for its seed and as a fertilizer—in fact, it is our principal fertilizer. Natural grasses largely furnish the grazing for stock.

Cattle raising is on the increase in this county, many farmers keeping from one to two car loads on their farms through the year, replacing, when sold, from neighboring farms and car lots from Chicago and elsewhere, and perhaps wheat falls away in like ratio. Corn and hogs are permanent. Farmers think a failure in wheat of no consequence if they have enough for bread, but failure of corn and hogs is considered a calamity.

Building is rapidly going on all over the county. A homogeneous population is apparent in the class and style of buildings—large bank barns, painted, some white, others red; small barns, some painted, likewise others not painted at all, indicate the style from whence they came. The style of houses indicate the same thing, but progress is visible everywhere. Streams for stock water are no longer necessary—the wind pump meets the case exactly without loss of land.

Drainage is epidemic; tile mills are as plenty as cider mills, and all over the country you see tile piled in the fields for use. The results are better farming, and water raises quicker and higher in all our streams. I think drainage could and should be more systemized.

Fencing is, perhaps, not second to any question incidental to farming. Timber is rapidly disappearing and correspondingly more valuable. The old worm fence will ere long necessarily be a thing of the past. What shall take its place? wire or board fence, or no fence? The stock laws are not enforced fully here yet. Fencing in stock is evidently the cheapest, so far as timber is concerned; but we graze a field this year and grain it next, and if we dispense with fences how shall we get our stock along the highways to our shipping points? Perhaps we might get the Supervisors to fence the public roads at public expense, if the Legislature would enact a law for that purpose.

Our present dog law seems satisfactory to our people.

Our statistical reports are doubtless of very great benefit, and are appreciated as a fruitful source of information, but it is unfortunate that more of our people do not receive them for perusal.

RELIGIOUS.

Beautiful brick and frame houses for religious worship are found in all parts of the county, and all denominations known in the State are represented. The Episcopalians, Methodists, Lutherans, Baptists, Catholics, Winebrennarians, Presbyterians, Universalists, Christians, German Reformers, Second Advents and Free Methodists are the leading churches, about in the order named.

EDUCATIONAL.

In addition to the higher graded schools in each of the towns and villages, every school district in the county has a frame or brick school house, erected with reference to both health and convenience, and the frames are being rapidly displaced by fine brick structures, and it is considered a disgrace, and almost a crime, for any person below middle age not to be able to read and write.

M. D. GARRISON, President.

JOHN ADAMS, Secretary.

BRIDGETON UNION.

The Bridgeton Union Agricultural Society, composed of the counties of Parke, Putnam, Clay, and Vigo, held its twenty-second annual fair on their grounds near Bridgeton, Parke county, commencing August 27th, and closing September 1st.

The show in all of the departments was very good, with the exception of thoroughbred cattle, there being but few herds in the immediate neighborhood of the grounds, and the nearest railroad seven miles off, is the reason of the small show in this department. With horses, hogs, and sheep the show was very good. The halls were very well filled, especially the fine art and vegetable halls. The weather was good during the entire week, but rather dry and dusty. We had the best of order. Our fairs formerly were noted for noise and confusion, but for the last four or five years the Board of Directors have passed an order excluding every thing of an immoral character, and have enforced the rule as far as it was possible to do so. The result is, that our expenses in the matter of police is not half what it was. Our sales for privileges are not so large, but are more than made up by the satisfaction and enjoyment of the people. The social intercourse of our fairs is one of the main features of our annual meetings. The agricultural, manufacturing and mining interest of the counties composing the district, are in a very flourishing condition. Three of the counties are among the leading agricultural counties of the State, and one the leading mining county. The counties of Parke, Putnam, and Vigo are making extensive improvements in gravel roads and tile draining. They are building all the gravel roads the law will allow, and several petitions for ditching are on file waiting their turn under the State ditching laws. The

counties of Parke and Vigo are reclaiming several hundred acres of the finest land in the counties. As yet, but little tile draining has been done in Clay county. Parke, Vigo, and Clay counties have each a joint stock association, and have been holding fairs for some years with reasonable success. There is quite an increased interest taken in introducing fine stock in the district. Corn crops fair, especially on bottom lands; not so good on the clay ground; some soft corn. Wheat in Parke county good; in Vigo and Clay, very light. Grass and clover good. The clover seed crop extra good.

RECEIPTS.

From all sources	\$1,877 71
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EXPENSES.

Paid out on general expense orders	\$616 34
Paid on premium orders	1,234 23
Leaving a balance	27 14
Total	<u>\$1,877 71</u>

DEMPSEY SEYBOLD, Secretary.

CAMBRIDGE CITY.

The Thirteenth Annual Fair of the Cambridge City Agricultural and Trotting Park Association, was held on September 4, 5, 6 and 7, 1883. Every interest of the county was fully represented, and as we are noted as being second to no county in the State, for a variety of interests, our fair was a good one. Among the many leading interests, for which we are fully entitled to credit, are cattle, hogs and horses. Never have we had a finer display of horses for general purposes, light draft and heavy draft, and light harness, than was to be seen at our fair.

The show of cattle would be a credit to any county in the State. Short Horns and Jerseys are the favorites.

Hogs.—There is a lively interest in this class of stock, and great care is being given to the selection of the best breeds. Poland China, Berkshire and Jersey Reds are the principal breeds.

Sheep.—There is not as much attention given to this branch of stock raising, as there would be, was not a worthless cur dog valued by many as much as a flock of sheep.

Poultry.—Never was a finer display than here. All classes were fully represented.

Dairy interests are each year receiving a greater share of attention, and within a few years bid fair to be one of the leading interests in the county.

Tobacco is fast becoming popular as a leading industry.

Fruit.—A small display, and it will be several years before the young orchards, which have been set in the past three years, will begin to bear.

Flax is being more neglected each year.

Wheat, corn and oats are the principal farm products. The quality of wheat last year was very poor, but little graded better than No. 3, and a great deal below. The yield about 11 bushels. Corn yield about 35 bushels, and is soft and poor quality. Oats, a fair crop, quality good, yield about 35 bushels.

Potatoes.—A good crop, yield from 75 to 80 bushels.

Sorghum.—This, too, is an industry which is attracting the attention of the farmers more each year, and if a factory was started in each district to make sugar as well as syrup, there would be but little demand for foreign sugar.

The condition of agriculture is each year improving, and the science of farming is becoming better understood. Fertilizing and under-draining are receiving more attention each year.

Fences.—Our Legislature seem to think that fences are of little or no expense. It is better to let cattle run and keep up fences, than to let fences go and keep up cattle.

Our county has as good railroad facilities as any county in the State; our farms are in a high state of cultivation; our roads are surpassed by none; the health of our people is unequalled; our schools are unsurpassed; our people intelligent and moral.

Our last fair was a success in every sense of the word. We will hold another one on September 3, 4, 5 and 6, 1884. We thank all those who aided us before, and again ask your aid and presence to make the next fair better than the last.

GEORGE W. SHULTZ, Secretary.

EASTERN INDIANA AGRICULTURAL ASSOCIATION.

The Eastern Indiana Agricultural Association was organized June 23, 1883, as a stock company, with a capital of \$10,000, and divided into shares of \$25 each. The officers chosen were N. B. Newman, President; Freeman Taber, Vice President; John Mitchell, Treasurer, and J. S. Conlogue, Secretary. Three hundred shares of the stock were taken and paid for in full. The association leased for ten years, with the privilege of ten more or the purchase of, fifty acres of land inside the corporation of Kendallville, Ind., on which is a beautiful grove of timber. A fine half-mile race course, costing about \$3,000, was constructed, and is now in excellent condition. A beautiful building was erected, at a cost of about \$1,800, for a floral hall. A grand stand one hundred feet in length, fifty large box-stalls, seventy open stalls for brood mares, etc., sixty stalls for cattle, a building containing fifty sheep pens, fifty pens for swine, and a commodious building for poultry, were erected for the convenience of exhibitors, the entire improvements costing about \$9,200.

The first fair was held October 9 to 13 inclusive, and was well attended, although the weather was unfavorable, particularly the last two days. The receipts of the fair were about \$4,600. The premiums, purses and running expenses were about \$2,700.

At a meeting of the directors October 22, 1883, a dividend of ten per cent. on the paid up capital stock was ordered, and has been paid.

The annual meeting of the stockholders took place December 3, 1883, at which time the officers of the association were re-elected by acclamation.

It was decided to hold the next fair October 6 to 10, 1884.

Respectfully submitted,

J. S. CONLOGUE, Secretary.

EDINBURG UNION.

In connection with the statistical information of the condition of the Edinburg Fair, I submit the following report of the condition of agricultural affairs in this district during the year now closing:

Our wheat crop was nothing to boast of, varying from seven to sixteen bushels per acre. The Fultz continues to be the leading variety, and is improving in milling qualities, yet it does not quite fulfill the requirements of new process milling. There is a growing tendency, each year, to put more land in wheat and less in corn. The corn crop is fair, quality somewhat below the average of past years. Other crops than these make but little figure in our statistics. A limited amount of oats, barley and rye. Potatoes were plenty and cheap—average price thirty cents per bushel. Hay crop good. Clover seed but little saved, prices having ruled so low that farmers claim it will not pay to work with it. Our fruit crop was fair, but not large.

In cattle this section can not be excelled, our beeves bringing always outside quotations at home, or in eastern markets. A large number of hogs are also raised, and, as packing is now carried on at all seasons, they can be marketed without loss.

The farmers are still continuing their good work of ditching and under-draining, and the time is not far distant when this part of Indiana will be one of the best farming districts in the State.

JNO. A. THOMPSON, JR., Secretary.

FOUNTAIN, WARREN, VERMILLION.

The Fountain, Warren and Vermillion Agricultural Association held their twenty-fourth agricultural fair in their grounds in Covington, Ind., September 18 to 21, inclusive, which proved a week of good weather, as it has done for the last fifteen years, making the fair a grand success, notwithstanding we allowed no gambling of any kind, not even padder-wheel games. Our grounds are in first-class condition, with the exception of large floral hall and office for the secretary. We paid all premiums in money.

The wheat crop was only about 60 per cent. of what we call a good crop, and the corn crop was not very good except in the river bottoms. They had good crops, but lost some of it, say 20 per cent., by an early rise of the Wabash river. The apple crop was an abundant one, apples selling as low as thirty cents per bushel. Potatoes were the best ever known raised in the three counties, several parties reporting as high as 350 bushels to the acre. Oats good; above the average. The same with hay.

We are building three gravel roads in the county of Fountain, and will soon have two more commenced. We have no trouble to get good gravel, which is easy of access and in abundance.

New coal mines are now opened at Yeddo and Snoddy's Mills, the mines finding ready market at Yeddo on the Chicago & Great Southern railroad, which is just finished to that place.

We were not troubled with hog cholera the last year. Horses, cattle and hogs are the principal stock now dealt in.

New tile factories are put in operation in different parts of the county, and still the demand is not satisfied.

Sheep raising is one of the "lost arts," as it is impossible to raise sheep on account of the dogs.

As the timber disappears, wire fences are coming more into use, but are a combination of wire and boards, so that they are not so bad on live stock.

HOMER SEWELL, Secretary.

FRANKLIN TOWNSHIP UNION.

In order to comply with requirements of the laws of the State and the regulations of the State Board, I herewith furnish a list of the principal crops raised in our district, together with a report of our fair of 1883. Our crops consist mostly of corn, wheat, timothy, oats, clover and potatoes. Our crops of the past season were as follows: The cold rains last spring and bad seed caused many fields to get frost bit, and the corn was hardly up to the average. Those that had a good stand made an average yield of good sound corn, and as a general thing it was all put in the crib in good shape before winter commenced. The wheat crop was hardly up to an average. The growing wheat looks fine, with a large acreage sown. Oats, an average crop. Timothy was good—a great deal damaged by rainy weather. Clover good; there is very little clover cut for feed, the most that is sown is for pasture and as a fertilizer; the farmers the past season turned their attention more to cutting and saving for seed than common. Potato crop above an average. Fruit crop very good. In stock raising, hogs take the lead; not many beef cattle, and not very many sheep. With reference to stock raising at large, we are not bothered much, neither are we bothered a great deal with worthless curs that prey about seeking flocks of sheep to devour.

Well, now to our exhibition of 1883. Our grounds are situated nine miles southeast of Indianapolis, on the Shelbyville gravel road. Last October was our

first effort as a stock association. The time for our fair was set for the 2d, 3d and 4th of October, 1883. On the first day we had to contend against a cold rain until nearly noon; on the second day it was threatening, and on the last day it rained half the day; but in the face of the bad weather, we had a fine display. The horse and cattle, hog and sheep and poultry departments were well filled with good stock. The agriculture and horticulture departments were a credit to any society, and the ladies were not behind in making their part of the fair a success.

We did not allow any games of chance nor intoxicating liquors on the ground, thus we were not bothered with any disturbance that generally arise from having such things at our fairs. On account of bad weather, our receipts were not as good as desired, but we paid all premiums and bills in full. We are not discouraged, and are making preparations for a success next fall. We feel as though the agricultural societies of the State, if carried on as they should be, are doing more for the improvement of agriculture and stock raising than anything else. With these facts in view, let every agricultural society in the State try and make their fair of 1884 the best they ever held.

G. A. STANTON, Secretary.

HENRY, MADISON AND DELAWARE.

The Henry, Madison and Delaware County Agricultural Society held their annual exhibition August 21, 22, 23, 24, 1883. The weather was fine, except the 23d, which was rainy in the morning, and prevented the attendance of many people, although we had a good attendance, and the fair, as a whole, was a success. The best of order prevailed on the grounds both night and day. The entries in all departments except cattle were much larger than ever before, and a marked improvement in quality, as well as quantity, was a noticeable feature of the fair. The citizens of this community deserve great credit for the improvement in cattle, sheep, hogs and horses. The quality and style can not be surpassed in any community. Our farmers are in the front in introducing the most modern improved machinery of all kinds on their farms to facilitate and promote successful farming. The soil of this section of the State is adapted to cereals of almost any kind grown in this climate, and most kinds of vegetables do well here. Grazing is one of the leading features of this section, and blue grass is the preference among most of our farmers, while some of our good, enterprising men say red clover is its equal as feed and its superior as a fertilizer. Under-ground drainage is very popular, and is being successfully used even on lands that at first thought seem not to need tiling; it is being used very successfully on table lands that are cold and clammy. In regard to our forest timber, we can only say that it is steadily being depleted, with no efforts to reinstate it, and I think it a question that demands the consideration of the citizens.

Fencing farms here is mostly done by planks and posts. Hedging is not looked upon with much favor, neither is the barbed wire fence regarded as a success. I am constrained to ask whether we have as yet introduced the coming farm fence?

E. L. ELLIOTT, Secretary.

KNIGHTSTOWN UNION AGRICULTURAL ASSOCIATION.

The district of Henry, Rush, and Hancock counties embraces some of the finest country in the West, nearly all of which is in a high state of cultivation. Nearly every acre of it is capable of being tilled. Within the last few years much improvement in drainage has been effected, and a great advance in the modes of cultivating and disposing of crops has been achieved. Since the last report there have been completed within the three counties nearly 100 miles of railroad and side track, and seven new towns started. During the coming year there will likely be built from twenty to thirty-five miles of additional railroad. There is hardly a spot in the three counties more than six miles from a railroad station. The advantages of this section for water power have been greatly overlooked by manufacturers, other than of flour and lumber. There are within three miles of Knightstown nine excellent mill seats, and as many more within ten miles of the same place. Some of these are idle because there is not enough grain raised here to keep them in operation. They could be profitably used for other kinds of manufacturing, and there are splendid openings for Eastern people who know how to make and dispose of goods.

Much attention is paid to the production of thoroughbred stock, and owners of studs and herds from this district enjoy a national reputation. The show of horses and cattle at the last fair was unrivaled; and the poultry show the largest in the history of the association. The trotting park here contains one of the best tracks in the West. A stable of fast horses from Pittsburg, valued at \$40,000, has been recently located here to be trained for the spring races.

The families of Short Horn, Polled Angus, Jersey, Devon, and Holstein cattle; Leicester, Cotswold, Southdown, and Merino sheep; Poland China and Berkshire hogs; and Clyde, Norman, English, and Kentucky horses, were represented, and some excellent pacers and trotters from Indiana, Ohio, and Kentucky competed in the races.

The large and valuable collection of fossils and antique specimens owned by Mr. E. Pleas, of New Castle, was exhibited at the last fair, and was a source of much attraction. The officers of the Indiana Home for Soldiers' Orphans and Asylum for Feeble Minded Children also made a large and varied display of articles pertaining to these institutions, and produced by the children. The Knightstown Light Guards gave a fine exhibition drill on the second day of the fair.

The show of vegetables and farm products was unusually fine, and that of fruits correspondingly small. The year has not been productive of good cereal crops in this section, both wheat and corn being much damaged by unfavorable weather. The ladies' department of the fair, managed exclusively by ladies, is one of its best features, and contained 694 entries.

An increased number of shows, stands, etc., were in attendance at the last fair, and owing to the large numbers present, were well patronized, and the owners went away highly elated. The association rigorously excludes all gambling devices and dancing tents, which action meets with general approval, and the rule should be adopted by all fair societies in the interest of morality.

The aggregate receipts of the fair for 1883 were \$4,446.94 as against \$3,736.68 receipts for 1882; and the entries increased from 1,226, in 1882, to 1,604, in 1883. The association liquidated \$529 of debts, and added \$300 of permanent improvements. The association is organized on the non-dividend paying plan, yet so great and so uniform has been its success for thirty-one years that the stock commands a premium of fifty per cent.

T. B. DEEM, Secretary.

LAWRENCE DISTRICT.

Our fair is devoted to "home" improvement. Its design is to reach mainly the amateur in each department of the great industries. At the State Fair, and other large institutions, the amateur is crowded to the wall by the professionals. We desire to give the former an equal chance, believing that his improvement should be the chief aim of all local societies. Our success goes to prove that this view is a correct one.

THE FAIR

Was held September 11, 12, 13, 14 and 15. The weather was fine, though dry and very dusty. The entries, attendance, and qualities of the exhibits, were much better than last year. The show of horses and cattle were nearly doubled in number, and finer. The time track was greatly improved, and we had some good trials of speed. A very fine show of sucking colts gives promise of some extra horses in the near future.

Two herds of Short Horns and three of Jerseys were represented by splendid specimens. Five breeds of sheep and three of hogs of good strains made up these departments. Nearly one hundred coops of poultry, about one-half of which was the individual exhibit of W. N. Haffield, of Indianapolis, were on exhibition. The show of vegetables, for variety and quality, could not have been beaten in the State. The horticultural exhibit was large and select, as usual. Over fifty varieties of apples and thirty of pears were represented by fine specimens while grapes, small fruits and flowers were scarcely behind. In the

MECHANICAL DEPARTMENT

We were favored by a fine display of pianos and organs by D. H. Baldwin & Co.; carriages, buggies, etc., by Mr. Black; agricultural implements and machinery by A. H. Meal and Jeff Caylor, all of Indianapolis, Ind.

The women, as usual, made an indescribable display of their beautiful handiwork. Their department was the center of attraction. [For further particulars see Statistical Report.]

AGRICULTURAL

Interests of this vicinity are progressing favorably; and although the past year has not been financially as successful as would be desired on account of the partial failure of the wheat crop, and the late spring and wet fall, still many needed improvements in buildings, fences, roads, etc., have been made. Several public ditches have been constructed, which drain large tracts of very rich swamp land. This adds much to the health as well as the wealth of the community. Ague, which ten years ago was a matter of course in "every well regulated family," is now scarcely known at all. The wise regulations of our County Commissioners concerning

STOCK RUNNING AT LARGE

Is of very great benefit. Only "well-behaved" milch cows are allowed to run at large on the commons of this county. This perhaps is the best plan. Our

PRINCIPAL CROPS

Are wheat, oats, corn, barley, hay, potatoes, garden vegetables, orchard and small fruits. Indianapolis affords a good market for all. Farmers live well, and some are growing rich from the proceeds of these crops. The latter are those who make farming a "business"—who keep themselves "well posted" in their business, the markets, improved stock and machinery.

FRUIT

Does well in this vicinity, such as apples, pears, quinces, grapes, cherries, berries, etc. Especially so as to apples, pears and grapes. For years specimens of these fruits from this immediate vicinity have been awarded the highest premiums at the State Fair. Our soil and elevation is such that trees are hardy and healthy and produce abundantly large and fine specimens. The

EDUCATIONAL INTERESTS

Are keeping pace with other improvements. The old inconvenient, unsightly, unhealthy school houses are giving place to pleasant, substantial homelike structures. Some attention is given to the adornment of the grounds, though not enough. The school grounds should be the most attractive in the neighborhood.

STOCK

Is generally healthy and being greatly improved by the addition of thoroughbreds. Our vicinity can boast of some as fine stock as can be found in the State. Any

DOG LAW

Is good if enforced. In Lawrence township, Marion county, four years ago, \$288.50 were paid out for sheep killed by dogs; this year only \$20.50 was necessary. This comes from the slaughter of worthless dogs. The trustee encouraged this by giving a small increase where the dogs had been killed. Our

PUBLIC ROADS

Are in a bad condition owing to the time and work lost by the road superintendency act and the unfavorable season just past.

W. B. FLICK, Secretary.

LOOGOOTEE DISTRICT.

The Tenth Annual Fair was held September 11 to 15, 1883. The fair was a success in every particular. Our grounds are located one mile west of Loogootee, near the Ohio & Mississippi railroad, and contain forty acres, a good half-mile track, a beautiful grove, with plenty of water, a Floral and Agricultural Hall, two ticket offices, a boarding house, judges stand, 215 box and open stalls, amphitheater 30 wide and 100 feet long.

The show of horses was good, of cattle very fine; hogs, sheep and mules was fair.

The agricultural and mechanical display was hardly up to the times. Horticultural and textile fabrics departments were extra good.

The weather was fine and warm but extremely dry, and a great disadvantage, as it was very dusty. The attendance was good and financially the fair was a success.

After paying the premiums in full, over \$500 for improvements and all other indebtedness, there was left in the treasury over \$1,100, and not a dollar of indebtedness.

Our District Fair comprises the counties of Daviess, Greene, Martin and Dubois, which is located in the southwest part of the State. About one-half of the land is slightly rolling, the other half is broken to a slight extent, and is well timbered. The level or rolling land is very productive, and produces to the acre, from 30 to 100 bushels of corn; 10 to 40 bushels of wheat; 200 to 300 bushels of potatoes; 30 to 50 bushels of rye; 15 to 50 bushels of barley; 20 to 75 bushels of oats; 3 to 8 bushels of clover seed; 1 to 3 tons of hay; and produces all kinds of vegetables in great quantities.

There has been great improvements made in farming in the last ten years. The farmer in this district that raised on a 160-acre farm 500 bushels of wheat ten year ago, was considered an extra large farmer. Now it is common for an ordinary farmer to raise that amount of wheat on 40 acres, with corn, oats, hay and vegetables sufficient to support a large family, with 10 of the 40 acres in timber.

The price of land here, unimproved, will average \$15 per acre, improved \$30 per acre. There have been great improvements in the last few years in buildings and fencing. There has been no improvement in the roads, which are extremely muddy in winter.

G. M. SHARUM, Secretary.

MIAMI AND FULTON.

The following is a report of the Miami and Fulton Counties District Fair, for the year 1883:

The above-named society held their first annual fair on their grounds, in Allen township, Miami county, on October 11, 12 and 13, 1883.

Number of entries in horses, 37; mules, 2; thoroughbred cattle, 19; grade cattle, 22; sheep, 12; hogs, 7; farm products, 187; kitchen and dairy products, 81; domestic manufacture, 68; poultry, 8; house plants in collections, 7; implements and machinery, 9.

Financially our fair was not a success, the weather being very unfavorable, raining two days; but we are out of debt and have a good prospect for the future.

The wheat crop for this year in this district made an average of about thirteen bushels to the acre, of very poor quality. Corn, about forty bushels, and poor quality. Oats were good. Potatoes good. Hay crop good. Fruit very light.

Our farmers are improving their farms very fast, in the way of better fencing, better building, more underdraining and better cultivation.

Stock, also, is being improved very fast. In horses, the Norman and Clydesdale are principally used to breed to, and are making their mark.

In cattle we have the Short Horn, the Devon, the Holstein, and some Jerseys, all having their admirers.

Sheep have not the attention that their importance demands, but we have some very good flocks.

Hogs.—The Poland China has pretty much his own way, and is no small item in the farmers cash account.

JOSHUA COFFING, Secretary.

NEW ROSS UNION.

The Fifth Annual Fair of the New Ross Agricultural Association was held August 13 to 17, inclusive. Although the weather was hot, dry, and the roads very dusty, it was a grand success, and again, as in former years recorded, "All premiums paid in full."

The horse and cattle departments were full to overflowing, and the finest that have ever been shown on our grounds, while the sheep, swine, and poultry departments were not so full as we have had formerly; yet we were consoled with the knowledge that they were of superior quality.

The display of the agricultural, horticultural, mechanical, fine art, and woman's departments were very fine, and arranged with taste. Taken as a whole, we are well satisfied in our efforts, to encourage the farmer in his avocation, and induce him to produce articles of superior quality.

Corn.—In this vicinity, as compared with 1882, is about 20 per cent. decrease in quantity, and 30 per cent. in quality, and fear expressed as regards its germ being alive.

Wheat.—About three-fifths crop, and of poor quality.

Oats.—Good; small crop sown.

Timothy.—Average crop.

Clover Seed.—Large crop and yield.

Vegetables.—An abundant yield.

Fruit.—More than an average.

“The little, old log cabins” are fast giving way to large, handsome residences and neat little cottages.

Tile drainage is the “pass word” with thrifty farmers. While tile mills are numerous, they can not supply the demand.

The old rail fences are fast crumbling down, and neat and substantial plank and wire ones rear their heads and look complacently down on the relic of “plenty of timber times.”

Timber culture has as yet received but little attention.

Gravel Roads.—Under the new law we are greatly increasing our convenience and wealth by grading and graveling our principal highways.

The dog law, in this community, as in all I have had occasion to visit, is a “dead letter” in the fullest sense of the word.

The educational interest is decidedly on the increase.

More might be added that would be of interest, but will close, extending to your honorable Board and community at large a cordial invitation to visit our next annual exhibition, beginning August 11, 1884.

H. E. HADLEY, Secretary.

NORTHEASTERN INDIANA AGRICULTURAL ASSOCIATION.

The Twelfth Annual Exhibition of the Northeastern Indiana Agricultural Association was held on their grounds near Waterloo on the 1st, 2d, 3d, 4th and 5th of October, 1883. The whole number of entries, not including manufactured articles, such as agricultural implements, musical instruments, etc., was 1,849. The exhibition of stock in the different departments was excellent.

In the horse department there was the largest number of entries ever made, and all the classes were well represented—imported heavy-draft horses, roadsters, carriage and general purpose horses. We can notice great improvement in the horses of this district every year. Number of entries 148.

In the cattle department there was a fine display of blooded stock, and also a great improvement in the grades. The number of entries was 62.

There was a very fine showing of thoroughbred sheep. In fact nearly all of the sheep on exhibition were blooded. Number of entries, 50.

There was a larger and finer display of swine than ever before. The Poland China and Chester White seemed to take the lead, but there was a good showing in the other classes. Number of entries 88.

Our agricultural department, considering the early frosts, which interfered in this department to a great extent, was good. We had some grain. We had a fine display of vegetables; they were especially fine. In fruits we did not have a large exhibit, except in apples; of these we had 181 entries.

In floral hall we had not only a large, but a very fine display, there being a very noticeable improvement both in quality and finish of articles. The "fine arts" were especially good.

We have paid in premiums this year, exclusive of speed ring, \$1,392.90. Financially we have had a very successful year. While the gate receipts were not so much as last year, the amount received for privileges and license makes the total receipts something over \$300 more. We have erected this year a building for swine, which we think as fine as any in this part of the State; also, have made other permanent improvements to the amount of \$485.37. We have also reduced the debt this year \$439.31, leaving the whole indebtedness of this association Jan. 1, 1884, only \$427.12.

IDA BLAIR, Secretary.

ORLEANS AGRICULTURAL ASSOCIATION.

The Fourth Annual Fair of the Orleans Agricultural Association was held on the grounds of the Association, at Orleans, on the 25th to 29th of September.

There were one hundred and forty-nine entries of horses, and many fine animals were shown. While there were comparatively few mules shown (only thirty-four entries), what were on exhibition were of extra quality.

Owing to an error in our premium list, not detected until too late, the exhibit of cattle was not as good as it should have been, there being only two local herds of Short Horns and a few individual entries, including but three Jerseys on exhibition, while there are in Orange and Lawrence counties many fine animals of each breed.

The attendance at our fair was not so good as we had reason to expect. The area of our district is small. Our grounds were flooded with water the two first days. The old county society had been re-organized, and held their first fair the week before ours, and only eight miles distant, and our fair being held on State fair week, all combined, diminished the attendance to a considerable extent. Notwithstanding all adverse circumstances we paid our premiums in full, in cash, on the spot, and had a fair balance left.

The condition of agriculture in Orange county is not nearly up to what it could and should be. Our county is mostly upland, there being no large streams in it. The area of alluvial lands is very limited. The constant cultivation of our rolling uplands has resulted in much of it being worn and run down. Our farmers have, in the past few years, turned their attention more to the grasses, which do remarkably well, especially on soils underlaid with lime stone.

The past year's crops have hardly been an average, wheat, owing to the depre-

dations of the Hessian fly being more nearly a failure than anything else, and of the present growing crops all of the earliest sown is now full of fly. Corn, where well cultivated, was good, but the wet weather during the fall prevented it from drying out, and the cold snap of November 14th and 15th injured fully forty per cent. of it very badly. Oats were a full average; hay not quite an average, but fully one-third of last year's crop is on hand yet, so there will be an abundance to take all stock well through the winter.

The late spring frosts nearly destroyed our fruits. There was only one entry of fruit at our fair.

With one exception, none of the roads of our county are graveled or macadamized. Consequently they got in a deplorable condition during the time intervening between the repeal of our old law and the taking effect of the new; but under the law passed last winter they have been put in better order the past summer and fall than perhaps ever before.

The improvement in farm residences, barns, and other buildings, has been very marked in the past few years. Fences are mostly the common rail or Virginia worm, and are generally good. Barbed wire is coming into use, and is becoming popular.

Nearly all farmers fence their stock in. The question of fencing stock in or out has never been much agitated in our district.

All this region was originally covered with a magnificent forest, consequently no efforts have ever been made to cultivate forest trees. On the contrary, the question has been how to get rid of them, and I regret to say that the question has been so effectually settled that posterity will weep over the short sighted folly of their ancestors. Millions of feet of the finest lumber has been shipped from this district in the past ten years, but there is plenty yet for local use if the destruction could now cease.

There has been very little tile draining in this county or district, there being but few marshes, and they small in extent, though there are many localities that would be greatly benefited by tiling if good outlets could be secured.

HENRY REED, Secretary.

PLAINFIELD HORTICULTURAL AND AGRICULTURAL SOCIETY.

The Plainfield Society, situated in Hendricks county, held a public exhibition on the 13th of October, but owing to the extremely inclement weather it was not so well attended as it would otherwise have been, yet the show of live stock, fruits, grain, vegetables, poultry, etc., was quite commendable under the circumstances, a lively interest being manifested for the success of the fair and society.

Our committee on farm products would report:

Corn.—A good average crop in bulk, but badly shrunk by frost. Many farmers planted seed corn from a southern latitude, which failed to mature in this latitude, partly owing to the peculiar fall, which was unfavorable for the maturing of corn. The shortage of the crop is estimated at twenty-five per cent. at least.

Wheat fair as to quality, but less than an average crop.

The hay crop was unusually good, and the hay harvested in excellent order.

Horses have had no serious diseases amongst them, yet the disease known as "pink-eye" has prevailed to some extent.

Cattle and sheep mostly quite healthy, but owing to the low price of wool and want of proper encouragement and protection, the *sheep industry* is waning, those having sheep preferring to reduce their numbers or quit entirely.

Hogs have been diseased more or less during the fall and early winter, especially since eating the fall mast. Many have died in the county, and some are yet diseased, though it is claimed the disease is not that commonly known as cholera.

Poultry.—A good average for a wet and cold season like the past has been. Not much cholera disease among them. Vermin is the greatest enemy we have among our birds.

Our mode of farming is grazing and grain growing, grazing somewhat predominating.

Some improvements in building and fencing, but little done in way of timber culture. The wire fence seems to be taking the place of the rail fence as the rails give out. We think this county will be able to "fence out" her stock for many years yet. Our public highways seem to be neglected too much under the present law. As to the dog law, for mercy's sake kill the dogs and protect the sheep.

WILLIAM H. MILLS, Secretary.

SOUTHEASTERN INDIANA.

The Fifteenth Annual Fair of the Southeastern Indiana Agricultural Society was held on their grounds near Aurora, Dearborn county, Ind., September 4, 5, 6, 7 and 8, 1883, and was in all respects a complete success. The weather was all that could be desired; the attendance good. The gate receipts and privileges were enough to pay off all premiums and indebtedness, besides paying off a bill of several hundred dollars for improvements made immediately preceding the fair.

The question of selling so many miscellaneous privileges at our fair was seriously objected to by many of our former patrons, but when voted down in our Board meeting they all came in, and unitedly our fair was made the best we ever had.

The condition of agriculture in our district, as near as can be summarized, is as follows:

Wheat the past year was not by any means an average crop, from five to ten bushels per acre being an average yield. Wheat is now bringing about \$1.00 per bushel.

The crops of corn, oats, barley and rye were an average.

Hay is now grown in our part of the State only for the use of the immediate market.

Pasturing for beef and butter purposes has taken the place of mowing and marketing hay.

The land is rather improving than otherwise, probably owing to the increased acreage of pasture lands and the greater use of fertilizers.

The finer timbers, cherry, walnut, etc., are now almost entirely taken from our farms.

The prospect for 1884 is now quite flattering.

The wheat has been covered with snow continually for a period of nearly a month in the midst of winter, and promises more than an average crop.

WILL A. GREER, Secretary.

SWITZERLAND AND OHIO COUNTIES.

The Thirty-second Annual Exhibition of the Switzerland and Ohio Counties Agricultural Society, held September 11 to 14, inclusive, was a pronounced success. The entries numbered 1,195. Competition strong, and a good show in nearly all departments, especially so in *live stock*, grains, vegetables, agricultural implements, and machinery. The ladies department, *i. e.*, needle work, domestic manufacture, and table comforts was superexcellent, and the miscellaneous department was well filled. Articles exhibited were gathered from far and near, but chiefly from Switzerland, Ohio, Dearborn, Ripley, and Jefferson counties, Ind.; Boone, Gallatin, Carroll, and Owen counties, Ky; Cincinnati and Louisville. Our agricultural machinery was shown in motion, propelled by steam power, and was quite an attraction. As to our improvement in stock, we mention only this fact, that we were told by our Kentucky friends, that years ago they visited our fair with almost a certainty of carrying off the strings, but that now they had to compete with the best premium stock of a half dozen neighboring fairs held previous to ours, that the owners of such stock encouraged by success elsewhere, rallied here, as if for a final struggle, making the hardest contest they met anywhere. The attendance at our fair was good, considering the drought and dust and difficulties of travel and transportation. The receipts were sufficient to pay all premiums, expenses, some two or three hundred dollars in improvements, and a little surplus for the treasury. Not one cent was received for license for any gambling or swindling device, or for liquor privilege. Large sums were refused for such privileges. The society relies upon the moral sense of the community at large to sustain them in their adherence to this principle, and acknowledge their gratitude for the hearty support given them by exhibitors and the general public. Our speed rings were only ordinary. There is a wide difference of opinion on this subject. Some would have nothing, care for nothing, and see nothing but the fast horse. Others would not have, hear of, or see him if they could help it. Conservative ground is taken. Two moderate purses are offered, one each for trotting and pacing, and neither extreme is fully gratified. Our next fair will be September 9 to 12, inclusive, 1884. The premium list has been revised and premiums increased 20 per cent. on thoroughbred cattle and all classes of horses, except speed ring. The general look out, we think, is favorable, and we shall try to succeed.

We have several times essayed to write up the condition of agriculture in this district. We understand that the *want* is not an ideal picture, an overdrawn or exaggerated representation of this subject, but a fair and truthful statement of this matter as it actually exists, gathered from personal observation or such reliable data as we can obtain. With this view, we shall not be able to give a very flattering report of either product or progress. Our district contains about 20,000 people, three-fourths of whom are agricultural in their pursuits. Our area is 310 square miles, nearly all tillable land. The Ohio river skirts our territory on the east and south a distance of forty-five miles. Numerous small streams run through the two counties, and the river and creek bottom lands constitute about one-seventh of our area. The remaining six-sevenths are about equally divided between the hill lands, the gently rolling and the flat lands. Our alluvial or bottom lands are the most valuable, being very productive, easily cultivated, convenient to market, etc. Our hill lands, generally called limestone lands, are also fertile, producing excellent crops of corn, wheat, potatoes, etc. The rolling lands, consisting of loam and clay, are excellent farming lands, and with proper culture produce fair crops of all kinds common to this latitude. The flat lands were originally covered with a heavy growth of oak, hickory and beech timber. These lands seem naturally adapted to grass, and where properly drained and cultivated will produce fair crops of grain or vegetables. The soil is clayey, and water, standing upon the surface during winter and the wet seasons of the year, in a great measure destroys its fertility. In some instances under draining with tile has been tried, and with good results. This kind of drainage is attended with so much expense that but little has been attempted in this way.

We have quite a variety in our farm products, raising corn, wheat, rye, oats, barley, buckwheat, sorghum, beans, potatoes, onions, and other vegetables, millet, clover, timothy, and other grasses, tobacco, fruits of all kinds grown in our climate, etc., etc.

Our manufactures are not very extensive. They are principally flour, lumber, furniture, farm implements, woolen goods, vehicles, barrels, etc. Though there are numerous smaller industries in wood, leather, iron, marble, brick, tobacco, etc., we might mention in this connection sorghum manufacture and dairy products as among the more extensive and important industries.

The wheat crop of 1883 was rather poor—some fair crops along the river bottoms, but on the hills and uplands the average yield was not more than four or five bushels per acre.

The oat crop was fair, but not much sown.

Hay crop about average—not so good as the previous year, and prices are so low (from five to seven dollars per ton) that the value of the crop is nearly all absorbed in the expense of harvesting, pressing, hauling, etc., and our shippers find no margin of profit, even at above prices, after freighting to New Orleans at an expense of six or seven dollars per ton, and selling at eleven or twelve dollars. Farmers are feeding liberally, and if there were enough stock in the country to consume the entire crop it would doubtless prove more remunerative to the producer and better for the country.

The corn crop was not near so good as last year. It made slow growth in the

early season, and, though it continued growing late in the fall, yet it did not fully mature, and there is, we judge, at least 25 per cent. of soft, mouldy and chaffy corn. We hear of some good crops. One man from eighty acres cribbed 8,000 bushels of good corn, but the average for the district would not exceed twenty-five or thirty bushels. The potato, which, by the way, is one of our leading crops, having increased in acreage about ten-fold in the last fifteen years, the crop this year was enormous, ranging from 100 to 400 bushels per acre. They were marketed at about twenty-five cents, and at this price were one of the most profitable crops that our country produced. The Russet is most extensively raised, though the Burbank, Peerless, and a dozen other varieties are cultivated. Tobacco is another important crop, and we learn that both crop and prices are satisfactory to the producer this year. Fruit growing is an extensive business with many of our farmers, particularly apples and peaches. This year the crop was a blank—almost a total failure. The hog crop, we think, was smaller than last year. This was induced by the high prices that prevailed last spring and summer, when common stockers sold for 7 to 7½ cents. There is, however, a good crop of young porkers coming on and hogs are likely to be plentiful. Berkshire and Poland China are the dominant breeds, though the Chester White and Jersey Red have a following. Cattle are in good request, and we judge their number is increasing. The Jerseys are growing in favor for milk and dairy purposes, while the Short Horn and their grades are preferred for beef cattle. Sheep husbandry is gradually on the increase, in spite of the wool tariff agitation. The poultry interest never wanes, and all kinds of live stock command good prices. Bee culture is rapidly on the increase, and the honey product this year was unusually large. No material improvement in our public roads. About one-tenth of our roads are macadamized or graveled, the nine-tenths common dirt roads; some of them in bad condition. The new law dividing a township into six districts, where formerly we had twenty-four, and requiring men to work at distances remote from their homes, and in many cases where they have the least interest, and under salaried supervisors who make a summer's job of it, is not satisfactory, and there is much grumbling.

As regards dog laws and stock laws, we have freely expressed our opinion heretofore, and have not changed our views. The floods last spring carried away much fencing along the river and other streams. This, together with the action of our Legislature on this subject, gave our commissioners courage to issue notice that no stock would be allowed to run at large. The regulation has been very generally observed, and we opine that, this rule once established, the former custom of public pasturage, or plunderage, will never again come into vogue.

A large acreage of wheat was sown last fall, which now looks promising. The winter thus far (holidays) has been mild, and stock is in good condition. Our country does not present that appearance of thrift and prosperity that we would desire. Of course some are accumulating wealth; others are not. Taken all in all, we feel that the year has not been lost. It may have had its disappointments; it has likewise had its enjoyments. We are one year richer in experience, if not in pocket. The public health is good. Law and order prevail. The people seem to be in good heart, and when spring opens we shall expect to see them again *speed the plow*, and we shall wish them abundant success.

WM. H. MADISON.

WAYNE, HENRY AND RANDOLPH.

The Fourth Annual Fair of the Wayne, Henry and Randolph Counties Agricultural Association, was held at Daiton, September 4 to 7, 1883. The display in most departments was excellent, as will be shown by the accompanying list of entries, premiums, etc. The horse, sheep, vegetable and household departments, were especially deserving of mention. The cattle and poultry departments were not as well represented as they should have been, though the show of cattle was an improvement on former years. There is undoubtedly an opening here, for owners of thoroughbred cattle to benefit themselves, and the community at large, by making our exhibit of stock worthy of "Old Wayne," Henry and Randolph counties.

The class of animals, products, etc., exhibited was better than on former occasions, and the interest manifested by exhibitors and others, shows that the society is doing a good work. So far as known general satisfaction was given and good feeling prevailed. The attendance was not as large as in 1882, (on account of the Cambridge City Fair being held at the same time,) and the financial condition is not so good as at that time.

As this association is still in its infancy, perhaps I may be pardoned for referring briefly to its organization and past history. In the winter of 1880, quite a number of persons in this locality, realizing that the good results which should attend our fairs, are almost, if not entirely, neutralized by the immoral practices which usually worm their ways into such organizations, and that the greater part of the premiums are usually paid for fast horses, determined to organize and manage an association, discarding those objectionable features. A fair was held in 1880 under very discouraging circumstances, but which was a surprise to its opponents, and was generally pronounced a success, and 50 per cent. of the premiums awarded were paid.

In 1881 the fair was patronized more liberally, nearly all departments were well represented, and 75 per cent. of the premiums were paid. In 1882 interest in the success of the fair became more general, though some of the departments were not so well represented as in 1881. The attendance was large, and the premiums, though liberal, were paid in full and \$200 applied on indebtedness.

The result of the fourth annual meeting is stated in the beginning of this report, and I will only add, that no chance game of any kind whatever, "money trap," or show, has been permitted on or near the grounds. Scarcely a case of drunkenness has occurred on the ground; no arrest has been made, and there has been no occasion for one. The support of the moral and substantial citizens of the district is reasonably assured, and the association hope to accomplish much good in the future.

Mixed farming predominates largely in our section. Corn and wheat, in the order named, are the staple cereals. Hogs, cattle and sheep, in the order named, are staple products; though almost all products grown in the State are produced in connection with the above mentioned staples. The wheat crop of 1883 was about one-half crop, and generally of poor quality. Corn, the same. Oats good. Flax not so much grown as formerly, and seems to be almost an entire failure on sod

ground. The potato crop was the largest and finest produced for many years. Grazing and meadows were fair. Dairy farming seems to be growing in favor, and promises good profits. Much loss has been sustained from hog cholera, especially in Randolph county. The fruit crop was almost an entire failure, so far as apples are concerned, and will be until new orchards come into bearing. The acreage of wheat sown is large, and the prospect favorable for a large crop in 1884. In nothing is the prosperity of our section more noticeable than in the large number of commodious, tasteful and convenient farm residences and out buildings which are everywhere springing up, showing that the farming community appreciate their calling, and the comfort of their families as well as *fat pocket books*. The improvement in roads is quite noticeable in some districts, while others are sadly deficient in this respect, and I might mention that wherever good roads are made, the buildings and surroundings soon correspond. Although there is comparatively little wet or waste land in our section, an immense amount of tile is being used for ditching. There are seven tile mills within some seven miles of this place, and I will venture the prediction that the value of the farm lands of this section will be enhanced one-fifth within ten years by this means alone. Hedge and wire fencing is being introduced quite rapidly, and it is evident that the old "worm fence" must go, and some form of straight fence take its place. The subject of fencing stock "in or out" apparently receives but little consideration, the rule being to fence the whole farm. Very little is being done in the way of replenishing our forests, which are disappearing at an alarming rate; though there seems to be an awakening as to planting timber for posts (black locust). This timber and fence question will, no doubt, be forced upon us in the near future.

B. B. BEESON, President.

WELLS AND BLACKFORD.

In compliance with the statute requiring annual reports of agricultural societies, I would submit the following for the Wells and Blackford Agricultural Association:

Their Seventh Annual Fair was held on the grounds used by the association at Five Points, in Wells county, commencing September 25 and continuing four days. The exhibition was very fine in all departments. The horse department was especially good, there being over two hundred entries and some of the best imported Clydesdales ever shown in this part of the State. The display of cattle was good. The sheep pens were all full, and of a quality that was an honor to the society. The hog department was simply immense in number, and some of the best in the State. The floral hall was well filled. The culinary department was exceptionally good, there being over four hundred entries. We have no track, as ours is purely an agricultural fair.

There were no intoxicating liquors allowed sold or drank on the ground, and wheels of fortune and all other gambling devices were strictly excluded.

Our premiums amounted to \$1,150. Our association financially is in good shape—all premiums paid in full and over \$1,100 in the treasury.

The condition of agriculture in the counties of Wells and Blackford is much better than a few years ago; and there are probably no counties in the State of equal territory that are doing more ditching than we are. There were seven tile mills run last summer in reach of this point. They are nearly all out of tile now, and the orders are not near filled.

There has been quite a number of free pikes built in these counties within a few years, and still the good work goes on. We think the dog law is in about as good shape as it will be made. A great many of us are getting tired of so much fencing, and think it is about time stock should be fenced in.

A. D. GOODIN, Secretary.

XENIA DISTRICT UNION.

The Xenia District Union Agricultural Society, of Xenia, Miami county, Ind., held its twelfth annual exhibition on their ground adjacent to the town of Xenia, on the 28th, 29th, 30th and 31st of August and 1st day of September, 1883.

This association was organized in the year 1871, by a number of our best farmers and business men of the counties of Miami, Howard, and Grant, whose object was to promote the interest of agriculture and stock raising in the counties comprising the district, and a piece of land favorably situated, containing about thirty acres, was leased of Dr. Converse for twenty years, and the necessary buildings, stalls, pens, etc., were erected, and the first fair was held in that year. Our grounds are about 60x80 rods in size. The south one-half is a beautiful forest of fine timber, well underbrushed, and set in blue grass, while the north half is a fine rolling piece of cleared land, around which is one of the finest half mile tracts, for trial of speed, in Northern Indiana. Our grounds are well supplied with water, from four large, deep wells, scattered over the grounds so that in the dryest times plenty of pure water is furnished for man and beast.

The society is now in a prosperous condition financially and otherwise, although like many other similar organizations, it has seen its dark days. Yet it has passed through, and now is in a healthy condition. Surrounded as we are, by one of the most fertile farm districts in the State, we feel assured that no further apprehensions of failure need be anticipated. Our last exhibition met the most sanguine expectations of the society, and although held a little early in the season, for the backward growth of vegetation, its show was creditable to both the society and the exhibitors. The good attendance of the people, throughout the whole exhibition, insured financial success, and the society was able to pay all the premiums, improvements, and expenses, in full, and the remnant of an old debt, and still leaving a balance in the treasury. The crops of 1883, although hardly an average in quantity or quality, is much above those of a great part of Indiana, and the prices

realized have been satisfactory, hence our farmers, as a class, are in a healthy financial condition, as is evidenced by the marked improvement being made all over the district in buildings of large, commodious dwellings, barns, etc.; and the spirit of enterprise has not been confined to the building of houses and barns, but the roads and highways of the district have received a fair proportion of attention, and since our Legislature has provided for the building of free gravel roads, each county in this district has already exhausted the limit of the amount allotted to such an enterprise, and yet numbers of petitions are on file with each auditor of the counties composing this district, waiting their turn for a gravel road. This enterprise seems very popular with our people.

While the roads have and are receiving such attention, by our people, they have not forgotten that this flat land needs drainage, and large, open ditches are being cut and immense numbers of underground tileage is being put in on every farm, so that the wet, swampy lands of a few years ago are fast being brought under cultivation, and we can now boast of having one of the most fertile farm districts of the State.

One other matter is being discussed by our farming community, and should receive the attention of our next Legislature; that is, the passage of a law forbidding the running at large of stock. The necessity of this is more apparent to us as our gravel roads and large open ditches are being made, as such stock, especially hogs, do a great amount of damage to such improvements, and for this reason, if for no other, they should be prohibited from running at large. This matter has been before our Legislature for several years, yet nothing has been done, but we hope that by the next meeting of our Legislature that members will familiarize themselves with the necessity of such legislation in the interest of the whole people.

J. W. EWARD, Secretary.

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA, 1883.

NAMES OF SOCIETIES.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Indiana State Board of Agriculture	Robert Mitchell.	Princeton	Alex. Heron	Indianapolis.
Allen County Northern Indiana	E. A. K. Hackett	Ft. Wayne	W. W. Rockhill	Fort Wayne.
Bartholomew County Agricultural Society	J. F. Wright	Columbus	Richard Thomas	Columbus.
Bartholomew County Agr. and Industrial Asso.	Simeon Boaz	Clifford	S. M. Glick	Columbus.
Blackford County A., H. and M. Association	W. S. Runyon	Hartford City	B. G. Shinn	Hartford City.
Boone County Agricultural Society	John M. Ball	Lebanon	John W. Kise	Lebanon.
Cass County Agricultural Society	George Zinn	Logansport	D. W. Tomlinson	Logansport.
Clark County Agricultural Association	M. B. Cole	Charlestown	D. F. Willey	Charlestown.
Clay County Fair Association	Silvan Weaver	Brazil	D. W. Brattin	Brazil.
Clinton County Agricultural Society	James McDavis	Mulberry	Joseph Heavilon	Jefferson.
Dearborn County Agricultural Association	E. D. Bannister	Lawrenceburg	Will H. O'Brien	Lawrenceburg.
Decatur County Agricultural Society	Will Cumback, Sen.	Greensburg	Ed. Kessing	Greensburg.
Delaware County A. and M. Society	John M. Graham	Muncie	W. H. Murray	Muncie.
Elkhart County Agricultural Society	Joseph Rippey	Syracuse	J. W. Irwin	Goshen.
Fayette County Fair Association	A. T. Beckett	Everson	A. B. Claypool	Connersville.
Fulton County Joint Stock Agricultural Society	N. A. McClung	Rochester	John M. Davis	Rochester.
Gibson County Horticultural and Agr. Society	Wm. Cockrum	Oakland City	S. Vet. Strain	Princeton.
Grant County Agr'l and Stock Association	Heskiah Steelman	Marion	D. S. Hugin	Marion.
Greene County Agricultural Society	David L. Osborn	Linton	Peter Schultz	Linton.
Hamilton County Agricultural and Fair Ass'n	L. B. Tomlinson	Westfield	W. C. Vance	Noblesville.
Harrison County Agricultural Society	John Q. A. Sieg	Corydon	J. A. Miller	Corydon.
Henry County Agricultural Society	John R. Peed	New Castle	Wm. W. Cottrell	New Castle.
Howard County Agricultural Society	David Smith	Vermont	A. N. Grant	Kokomo.
Huntington County Agricultural Society	Robert Simonton	Huntington	Leon T. Bagley	Huntington.
Jackson County Agricultural Society	Blaze Robertson	Shields	Joel H. Matlock	Brownstown.
Jasper County Agricultural Society	George H. Brown	Rensselaer	Ezra C. Newels	Rensselaer.
Jay County A., H. and I. Joint Stock Co.	Jonas Votaw	Portland	Robert B. Stevenson	Portland.
Jefferson Co. Grange Jubilee Agr'l and Mech. As	D. P. Monroe	Saluda	Thos. H. Watlington	Stony Point.
Jennings County Joint Stock Agr'l Association	V. C. Meloy	North Vernon	C. D. Shank	North Vernon.

Johnson County Fair Association	Isaac M. Thompson	Franklin	Dr. D. H. Miller	Franklin.
Johnson County Urneyville Agr'l Association	John Tilson	Franklin	Henry Fisher	Franklin.
Knox County Agr'l and Mechanical Society	Hiram A. Foulks	Vincennes	Gerard Reiter	Vincennes.
Kosciusko County Agricultural Society	H. P. Comstock	Warsaw	S. W. Oldfather	Warsaw.
Lagrange County Agricultural Society	Moses Balyleat	Lagrange	H. M. Kromer	Lagrange.
Lake County Agricultural Society	H. R. Ward	Leroy	Geo. I. Maillet	Crown Point.
Laporte County Agricultural Association	John P. Oakes	Laporte	Geo. U. Dorland	Laporte.
Lawrence County Agricultural Society	Wm. A. Holland	Bedford	N. E. Stout	Bedford.
Madison County Joint Stock Agr'l Society	John P. Barns	Anderson	C. K. McCullough	Anderson.
Marion County A. & H. Society	Sylvester Johnson	Irvington	J. J. W. Billingsley	Indianapolis.
Marshall Co. Farmers' and Mechanics' Fair	Robert Schroeder	Plymouth	W. H. Conger	Plymouth.
Miami County Fair Association	Gottlieb Conradt	Peru	John T. Stevens	Peru.
Montgomery County Agricultural Society	Jasper N. Davidson	Whitesville	F. L. Snyder	Crawfordsville.
Morgan County Joint Stock and Agr'l Ass'n	Lafayette Sims	Martinsville	H. A. Smock	Martinsville.
Newton County Agricultural Society	A. J. Ellis	Morocco	Wm. Darrock	Morocco.
Noble County Agricultural Society	Orlando Kimmell	Ligonier	J. H. Hoffman	Ligonier.
Orange County Agricultural Society	J. M. Andrew	Poali	Geo. A. Baskirk	Poali.
Parke County Agricultural Society	R. C. McWilliams	Rockville	W. J. White	Rockville.
Perry County Agr'l and Mechanical Association	A. T. Wheeler	Rome	I. L. Whitehead	Rome.
Pike County Agricultural Society	Samuel Hargrove	Union	Goodlet Morgan	Petersburg.
Porter County Agricultural Society	Wm. Riggs	Valparaiso	E. S. Beach	Valparaiso.
Posey County Agricultural Society	Wm. Richard	New Harmony	F. D. Bolton	New Harmony.
Putlaski County Agr'l and Mechanical Ass'n	H. Kittinger	Winamac	Jesse Taylor	Winamac.
Putnam County Agricultural Society	Jerome B. Coleman	Greencastle	W. S. Cox	Greencastle.
Randolph County A., M. and H. Ass'n	Thos. M. Bronne	Winchester	D. E. Hoffman	Winchester.
Ripley County Agricultural Society	Rezin Johnson	Elwood	W. R. Glasgow	Osgood.
Rush County Agricultural Society	J. T. McMillen	Siar P. O	Lon Link	Rushville.
St. Joseph County Northern Indiana Agr'l Society	Wm. O. Jackson	South Bend	C. G. Towel	Mishawaka.
Shelby County Joint Stock Agr'l Ass'n	Joseph L. Carson	Shelbyville	A. J. Gorgas	Shelbyville.
Steuben County Agricultural Association	A. W. Hendry	Angola	Benj. F. Dawson	Angola.
Tippecanoe County Agricultural Association	W. Taylor	Lafayette	Chas. H. Wallace	Lafayette.
Tipton County Fair Company	J. S. Hunter	Shieldsville	Wm. Barlow	Tipton.
Vigo County Agricultural Society	Jas. M. Sankey	Terre Haute	Wm. H. Duncan	Terre Haute.
Wabash County Agricultural Society	Nathaniel Banister	Dora	Fred J. Snavelly	Wabash.
Warren County Agricultural Joint Stock Co.	James Goodwin	West Lebanon.	W. S. Fleming	West Lebanon.
Warrick County Agricultural Society	Isaac French	Lynnville	S. W. Taylor	Booneville.
Washington County A., H., M. and I. Association	E. W. Shanks	Salem	Fred L. Prow	Salem.
Wayne County A. and H. Society	Joseph C. Radliff	Richmond	Richen V. Austin	Richmond.
Wells County Agricultural Society	Branson Weaver	Bluffton	J. A. Wiley	Bluffton.
Whitley County Joint Stock Agricultural Ass'n	M. D. Garrison	Columbia City	John Adams	Columbia City.
Bridgerton Union.	Ruben Cox	Bridgerton	Dempsey Seybold	Perth.
Cambridge City A., H. and M. Association	A. B. Claypool	Connorsville	G. W. Shultz	Cambridge City.
Dunkirk Union Fair Association	D. B. Moore	Dunkirk	W. W. Payton	Dunkirk.
Edinburg Union Agricultural Society	Sam'l Cutsinger	Edinburg	J. A. Thompson, Jr.	Edinburg.
Franklin Township, Marion county Association	Shepler Fry	Acton	G. A. Stanton	Greenwood.
Fountain, Warren and Vermillion Ag'l Ass'n	David Webb	Covington	Homer Sewell	Covington.
Henry, Madison and Delaware Ag'l Ass'n	N. R. Elliott	Mechanicsburg	E. L. Elliott	Middletown.
Knightsdown Union Agricultural Association	Tilghman Fish	Knightsdown	T. B. Deem	Knightsdown.
Loogootee A. and M. Fair Association	James Campbell	Loogootee	Geo M. Sharum.	Loogootee.
Wayne, Henry and Randolph Ag'l Ass'n	B. B. Beeson.	Dalton	Wm. D. Gordon	Dalton.

EXHIBIT OF AGRICULTURAL SOCIETIES—Continued.

NAMES OF SOCIETIES.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Northeastern Indiana Agricultural Association.	R. N. Crooks	Waterloo	Ida Blair	Waterloo.
Plainfield H. and A. Association	Amos Alderson	Plainfield	Wm. H. Mills	Plainfield.
Southeastern Indiana Agricultural Society	John McGuire.	Aurora.	Will A. Greer	Aurora.
Switzerland and Ohio County Agr'l Society	E. P. Goddard.	Quercus Grove	Wm. H. Madison	East Enterprise.
Wells and Blackford Agricultural Association.	W. J. Bush	Hartford City	J. D. Goodin	Montpelier.
New Ross Union Agricultural Association	John Lockridge	Mace.	H. E. Hadley	New Ross.
Xenia District Ag'l and Hort. Society	L. M. Reeves	Xenia	John W. Eward	Xenia.
Orleans Agricultural Association.	John H. Bowles	Orleans	Henry Reed	Orleans.
Eastern Indiana Agricultural Association.	N. B. Newman	Kendallville.	J. S. Conlogue.	Kendallville.
Union City Ag'l and Mechanical Association	Harod Mills	Greenville, Ohio	J. G. Stall	Union City, Ind.
Tell City Fair Association	Jas. M. Combs	Cannelton	Henry D. Stuehrk	Tell City.
Lawrence District Fair Association	O. W. Voorhis	Lawrence	Wm. B. Flick	Lawrence.
Francisville Agricultural Society	J. G. Hunt.	Medaryville.	W. A. Brewer	Francesville.
Miami and Fulton Counties Agricultural Ass'n.				

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA, 1883—Continued.

EXHIBIT OF AGRICULTURAL SOCIETIES.

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NAME OF SOCIETY.	ENTRIES.															Total.
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Spec'l Premiums.	
Indiana State Board of Agriculture . . .	339	23	291	261	352	300	1,566	2,500	689	234	1,223	17	57	362	44	6,330
Bartholomew Co. Agricultural Ass'n . . .	159	20	95	49	45	93	461	79	78	54	33	33	1	160	..	1,068
Blackford Co. A. H. and M. Ass'n . . .	180	13	46	48	35	111	433	45	107	85	266	34	24	55	..	1,130
Boone County Agricultural Society . . .	217	33	46	74	139	51	560	137	184	34	479	46	..	763	..	1,509
Cass County Agricultural Association . . .	173	13	81	43	51	78	439	67	195	277	29	82	..	..	..	1,852
Clark County Agricultural Ass'n . . .	117	10	26	..	15	3	..	8	14	55	56	..	..	49	..	353
Clay County Fair Association . . .	58	1	15	14	7	..	95	36	193	44	165	6	50	23	11	623
Clinton County Agricultural Society . . .	205	6	37	173	71	44	536	16	162	306	368	71	..	67	..	1,540
Decatur County Agricultural Society . . .	101	13	44	26	48	20	252	34	26	6	34	..	..	325	..	677
Elkhart County Agricultural Society . . .	137	..	41	15	24	28	245	102	120	34	128	17	..	17	..	663
Fayette County Fair Association . . .	142	14	36	39	19	76	325	140	282	38	260	33	..	24	..	1,103
Fulton Co. Joint Stock Agri. Society . . .	132	2	50	35	27	19	265	33	107	38	163	33	..	15	..	824
Gibson County H. and A. Society . . .	218	17	92	73	64	69	533	111	71	263	365	108	..	746	60	2,257
Grant Co. Agr'l and Stock Ass'n . . .	256	2	60	135	107	80	640	81	86	40	390	50	..	58	..	1,345
Greene County Agricultural Society . . .	127	22	47	43	49	35	323	21	111	258	22	11	..	44	..	790
Hamilton Co. Agr'l and Fair Ass'n . . .	188	17	70	122	105	102	604	95	155	86	45	198	10	162	..	1,355
Harrison County Agricultural Society . . .	672	48	82	29	56	68	955	67	658	202	100	36	..	91	..	2,109
Henry County Agricultural Society . . .	200	5	55	42	43	55	400	20	20	35	..	..	..	..	..	455
Howard County Agricultural Society . . .	121	9	35	40	62	85	352	120	99	39	193	21	..	270	..	1,094
Huntington County Agr'l Society . . .	310	30	152	113	107	93	805	226	247	86	275	250	..	712	..	2,601
Jackson County Agricultural Society . . .	101	19	28	21	11	8	188	37	108	30	35	75	..	57	..	532
Jasper County Agricultural Society . . .	58	2	29	21	5	86	201	11	74	18	320	11	7	..	5	647
Jay Co. A. H. and I. Joint Stock Co. . .	107	3	70	50	75	56	361	76	233	305	25	25	..	100	..	1,140
Jefferson Co. Gr'ge Jubilee A. & M. Ass.	141	13	74	41	41	39	349	..	142	214	82	2	..	103	..	892
Jennings Co. Joint Stock Agr'l Ass'n . .	247	24	125	72	62	24	554	122	440	74	120	70	84	863	308	2,635

EXHIBIT OF AGRICULTURAL SOCIETIES—Continued.

NAME OF SOCIETY.	ENTRIES.															
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums.	Total.
Knox County A. and M. Society	294	23	58	59	46	98	578	267	153	328	187	496	49	168	..	2,177
Lagrange County Agricultural Society	116	..	24	50	23	28	241	35	89	161	136	..	..	54	..	765
Lake County Agricultural Society	187	..	71	29	12	16	315	13	42	12	115	5	..	..	..	502
Laporte County Agricultural Ass'n	102	2	60	38	20	30	252	64	72	30	87	76	..	128	176	885
Madison County Joint Stock Agr'l Soc.	118	10	34	108	87	155	512	..	49	344	675	49	..	..	..	1,629
Marshall Co. Farmers and Mech. Fair	24	..	18	10	25	2	79	48	95	13	150	..	..	14	1	410
Montgomery County Agr'l Ass'n	497	16	134	168	206	273	1,294	308	192	71	68	247	61	139	..	2,380
Newton County Agricultural Ass'n	122	11	23	9	46	43	254	6	127	12	55	12	..	11	..	477
Noble County Agricultural Society	160	3	27	38	15	12	255	52	177	101	259	24	..	25	95	988
Parke County Agricultural Society	139	11	91	45	99	40	425	48	140	356	53	356	..	..	120	1,498
Perry County Agr'l and Mecha'l Ass'n	57	1	2	4	2	12	78	32	249	71	..	..	..	256	..	686
Pike County Agricultural Society	149	18	25	17	18	24	251	7	128	99	326	..	..	32	..	843
Porter County Agricultural Society	58	..	47	35	28	21	89	87	93	20	..	18	..	..	..	307
Posey County Agricultural Society	241	11	33	22	37	26	370	34	152	63	19	..	..	654	..	1,292
Randolph Co. A. H. and M. Ass'n	128	18	53	70	70	60	379	86	186	398	397	25	..	80	1	1,552
Rush County Agricultural Society	212	27	66	63	89	73	530	65	347	71	353	30	..	162	..	1,558
Shelby Co. Joint Stock Agr'l Ass'n	232	18	103	88	100	62	603	139	345	43	83	42	..	745	547	2,537
St. Joseph Co. North. Ind. Agr'l Soc.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,600
Steuben County Agricultural Ass'n	92	..	48	77	50	31	298	71	288	853	286	34	10	101	27	1,968
Tipton County Fair Company	183	5	52	74	113	36	463	53	133	39	158	35	..	160	..	1,041
Vigo County Agricultural Society	47	12	44	42	18	17	180	..	40	..	..	..	..	62	..	282
Wabash County Agricultural Society	368	13	50	75	101	131	738	78	193	33	399	52	..	300	..	1,793
Warren Co. Agr'l Joint Stock Co.	139	6	25	17	30	13	230	22	279	30	158	18	..	24	..	761
Warrick County Agricultural Society	126	14	58	30	13	51	292	..	37	17	77	16	..	..	..	439
Washington Co. A. H. M. and I. Ass'n	365	30	48	44	38	25	550	28	228	59	121	116	..	487	..	1,589
Wells County Agricultural Society	91	..	21	9	61	58	321	13	109	28	19	11	..	16	..	517
Whitley Co. Joint Stock Agr'l Ass'n	80	10	60	40	50	75	315	..	50	75	100	50	..	25	..	615

DISTRICT AGRICULTURAL ASSOCIATIONS.

ENTRIES.

NAME OF SOCIETY.	Horses.	Jacks & Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums.	Total.
Bridgeton Union	170	20	30	50	80	5	355	50	125	100	340	275	..	..	..	1,245
Cambridge City A., H. and M. Ass'n	90	10	35	22	27	99	283	45	108	15	216	12	..	88	30	697
Edinburg Union Agricultural Society	151	8	72	43	36	39	349	73	157	..	74	..	..	918	17	1,588
Fountain, Warren and Vermillion Co.'s Agricultural Association	107	19	45	37	48	22	278	57	650	1,170	800	111	..	600	..	3,666
Knightstown Union Agricultural Ass'n	238	31	75	44	72	153	613	108	144	37	37	25	4	656	..	1,605
Loogootee A. and M. Association	215	5	125	54	93	13	505	20	15	205	340	80	..	25	..	1,190
Wayne, Henry and Randolph Counties Agricultural Association	123	4	23	27	32	14	223	36	111	94	63	..	..	91	..	618
Northeastern Indiana Agricultural Association	186	..	62	50	88	6	392	60	522	261	347	26	3	136	132	1,879
Plainfield Horticultural and Agricultural Society	16	1	3	8	3	3	34	..	26	12	..	..	..	6	..	78
Switzerland and Ohio Counties Agricultural Society	205	22	36	28	35	42	368	89	315	62	259	..	28	74	..	1,195
Wells and Blackford Counties Agricultural Association	216	14	64	51	52	63	460	75	163	30	286	..	..	432	..	1,446
New Ross Union Agricultural Ass'n	275	6	46	21	53	50	401	22	31	63	161	68	..	66	..	1,812
Xenia District Union A. and H. Society	150	20	30	30	20	20	300	13	125	20	300	50	..	92	..	887
Orleans Agricultural Association	174	34	29	38	21	8	304	13	49	19	22	3	..	147	..	557
Eastern Indiana Agricultural Ass'n	100	..	44	49	38	68	299	26	410	136	355	39	10	..	4	1,279
Tell City Fair Association	65	3	3	..	3	3	74	16	36	27	..	..	..	1	..	154
Lawrence District Fair Association	147	4	71	79	25	79	405	72	591	148	301	..	165	146	7	1,835
Francesville Agricultural Society	120	1	16	11	29	17	194	3	104	90	11	..	..	68	..	470
Franklin Township Union Association, Marion county	115	5	56	9	22	40	247	45	109	40	66	7	..	111	2	627

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA, 1883—Continued.

NAME OF SOCIETY.	PREMIUMS PAID.															Total.
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums	
Indiana State Board of Agriculture . .	3,205	\$134	2,304	\$678	\$856	\$226	\$7,503	\$41	\$433	\$885	\$628	\$7	\$132	\$94	.	\$9,581
Bartholomew Co. Ag'l & Ind't'r'l Ass'n . .	488	78	378	149	99	61	1,253	27	33	35	49	20	2	13	.	1,465
Blackford Co. A. H. and M. Association .	348	10	51	32	28	17	486	65	16	5	184	20	25	.	.	616
Boone County Agricultural Society . .	1,001	62	304	110	144	50	1,671	65	114	19	184	20	25	.	.	2,098
Cass County Agricultural Association . .	1,403	46	401	61	74	79	2,064	97	111	83	16	63	460	.	.	2,894
Clark Co. Central Agricultural Ass'n . .	318	14	112	.	30	2	476	8	6	12	24	.	.	13	.	539
Clay County Fair Association.	520	5	69	30	34	.	658	40	94	25	44	.	5	40	.	906
Clinton County Agricultural Society . .	1,438	30	369	131	115	46	2,129	6	53	89	157	41	.	19	\$80	2,574
Decatur County Agricultural Society . .	1,007	72	466	108	172	35	1,860	20	6	25	.	.	.	290	.	1,243
Elkhart County Agricultural Society . .	1,216	.	88	18	29	14	1,365	32	10	16	30	13	.	.	.	1,466
Fayette County Fair Association	965	39	226	78	84	54	1,446	21	103	55	152	33	.	55	.	1,865
Fulton Co. Joint Stock Agr'l Society . .	217	8	111	48	38	6	428	42	39	20	34	17	.	52	10	642
Gibson Co. Hort. and Agr'l Society . .	960	55	196	192	94	43	1,540	100	18	111	73	51	.	132	55	2,080
Grant Co. Agricultural and Stock Ass'n .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2,189
Greene County Agricultural Society . .	434	59	140	72	82	20	807	21	56	107	8	7	.	34	.	1,040

Hamilton Co. Agr'l and Fair Ass'n	825	40	246	98	198	49	1,456	35	22	11	36	15	40	36	1,615
Harrison County Agricultural Society	803	73	231	98	138	40	1,383	223	150	64	49	10	10	49	2,031
Henry County Agricultural Society	391	17	297	75	165	31	976	20	35	..	..	50	50	..	1,071
Howard County Agricultural Society	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,484
Huntington Co. Agricultural Society	480	12	235	108	115	35	985	60	16	122	150	..	489	..	1,931
Jackson County Agricultural Society	577	24	74	27	25	6	733	31	18	16	38	..	31	..	906
Jasper County Agricultural Society	456	6	121	38	13	51	685	8	35	83	13	11	11	..	901
Jay Co. Agr'l, Hort. and Joint Stock Co.	750	12	205	90	175	35	1,267	80	102	25	..	..	101	..	1,669
Jefferson Co. Grange, Jub. A. & M. Ass'n	243	34	250	130	74	32	763	76	104	49	3	..	18	..	1,042
Jennings Co. Joint Stock Agr'l Ass'n	1,099	140	352	115	164	42	1,912	108	50	63	27	7	120	..	2,463
Knox Co. Agr'l and Mechanical Society	1,096	92	501	180	133	120	2,122	105	176	105	234	..	89	..	2,939
Lagrange County Agricultural Society	702	..	58	101	45	29	935	17	29	62	15	23	22	..	1,103
Lake County Agricultural Society	843	..	200	72	36	14	1,165	27	11	68	12	..	..	..	1,300
Laporte County Agricultural Ass'n	574	12	221	80	84	17	998	112	30	71	74	..	116	..	1,537
Madison Co. Joint Stock Agr'l Society	1,375	31	292	217	161	96	2,175	..	110	222	54	..	..	..	2,746
Marion Co. Agr'l and Hort. Association	9	..	7	6	3	..	25	..	..	..	..	..	96	..	121
Marshall Co. Farmers' Mechanical Fair	422	..	51	15	50	3	541	..	18	102	..	..	14	..	746
Montgomery Co. Agricultural Ass'n	4,576	30	1,390	365	475	298	7,124	190	105	46	127	60	40	..	7,926
Newton County Agricultural Ass'n	694	41	50	19	46	43	889	10	59	21	4	..	9	..	999
Noble County Agricultural Society	812	3	121	69	32	8	1,045	35	28	78	16	..	..	..	1,311
Parke County Agricultural Society	412	53	472	78	132	24	1,171	67	45	198	146	..	..	..	2,513
Perry Co. Agr'l and Mechanical Ass'n	220	5	7	12	4	4	252	19	36	11	..	..	120	..	438
Pike County Agricultural Society	1,228	55	112	43	69	18	1,525	13	18	..	..	..	209	..	1,765
Porter County Agricultural Society	129	..	100	58	44	13	344	55	49	14	4	..	..	..	974
Posey County Agricultural Society	1,250	46	104	51	100	32	1,583	48	65	19	..	..	74	..	2,648
Randolph County A. H. and M. Ass'n	717	65	120	161	199	38	1,300	122	77	129	10	..	34	..	1,893
Rush County Agricultural Society	1,360	72	584	226	285	85	3,270	122	116	90	47	..	36	..	3,816
Shelby County Joint Stock Agr'l Ass'n	1,678	77	525	154	294	96	2,819	163	132	40	44	..	335	..	3,675
St. Joseph Co. N. Indiana Agr'l Society	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,000
Steuben County Agricultural Ass'n	194	..	102	76	68	14	454	18	130	72	25	5	..	..	1,322
Tipton County Fair Association	268	18	168	107	300	17	878	30	41	71	18	..	259	..	1,305
Vigo County Agricultural Society	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,031
Wabash County Agricultural Society	761	57	470	179	252	60	1,779	105	49	159	15	..	33	..	2,259
Warren Co. Agricultural Joint Stock Co.	415	13	151	43	79	10	711	48	107	108	10	..	7	..	1,012
Warrick County Agricultural Society	607	75	265	112	65	50	1,174	50	40	100	15	..	..	..	1,379
Washington Co. A. H. M. and I. Ass'n	1,286	36	129	67	94	13	1,625	29	31	35	34	..	83	..	1,850
Whitley Co. Joint Stock Agr'l Ass'n	400	20	200	100	75	20	815	..	100	60	40	..	..	..	985

DISTRICT AGRICULTURAL ASSOCIATIONS.

NAME OF SOCIETY.	PREMIUMS PAID.															Total.
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums	
Bridgeton Union	\$590	\$26	\$124	\$51	\$85	\$2	\$878	\$38	\$47	\$36	\$98	\$120		\$18	\$1,235	
Cambridge City A., H. and M. Ass'n . .	300	85	225	90	115	181	996	15	70	42	138	42		162	1,815	
Edinburg Union Agricultural Society . .	930	57	561	165	185	36	1,934	164	109		20			241	2,475	
Fountain, Warren and Vermillion Ag- ricultural Association.	421	78	395	70	154	22	1,140	100	150	200	275	115		125	2,105	
Knightstown Union Agr'l Ass'n	901	70	373	164	225	48	1,781	174	58	29		30		342	2,414	
Loogootee A. and M. Association.															1,325	
Wayne, Henry and Randolph County Agricultural Association	141	6	51	52	48	7	305		16	15	24	38	\$10	24	384	
North Eastern Indiana Agr'l Ass'n . . .	1,536		215	96	171	3	2,021	65	113	49	162			60	2,566	
South Eastern Indiana Agr'l Society. . .	689	47	171	62	86	28	1,083	145	149	69	134		6	105	1,691	
Switzerland and Ohio County Agr'l So. Wells and Blackford Agr'l Ass'n. . . .	362	33	167	118	110	49	839	68	41	14	95			93	1,150	
New Ross Union Agr'l Ass'n	1,220	23	296	57	102		1,708		13	42	96	40		51	1,950	
Xenia District Union A. and H. Society .	384	30	226	97	81	40	858		123	39	186	60		32	1,498	
Orleans Agricultural Association. . . .	687	43	92	53	40	6	921	26	26	22	14	4		98	1,112	
Eastern Indiana Agricultural Ass'n . . .	1,184		204	115	88	38	1,629	19	65		119	32	23		1,947	
Tell City Fair Association	468	13	15			2	498	35	31		21			3	588	
Lawrence District Fair Ass'n.	436	15	109	71	41	29	701		41	24	34			6	826	
Francesville Agricultural Society	159	3	28	9	19	9	267	4	21	13	5			12	322	
Franklin Township Union Association, Marion county.	147	10	77	21	34	17	306		18	10	3			7	389	

EXHIBIT OF AGRICULTURAL SOCIETIES OF INDIANA, 1883—Continued.

EXHIBIT OF AGRICULTURAL SOCIETIES.

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NAME OF SOCIETY.	RECEIPTS.					DISBURSEMENTS.							
	Admission Fees.	License Fund Received.	Entry Fees.	Privileges Sold.	All Other Sources.	Total.	Rents and Old Claims.	Improvements.	Salaries.	Premiums Paid.	Expenses of Fair.	All Other Expenses.	Total.
Indiana State Board of Agriculture . . .	\$21,918		\$730	\$4,210		\$26,858	\$250	\$1,140	\$1,850	\$9,581	\$3,812	\$3,528	\$19,913
Bartholomew County A. & J. Ass'n . . .	831		601	215	\$3	1,650	142	185	75	1,465	618		2,469
Blackford County A., H. & M. Ass'n . .	824		66	150	188	1,228	108	400	50	616	226		1,219
Boone County Agricultural Society . . .	2,298	\$44	50	598	121	3,111	664	221	77	2,098	150	177	3,010
Cass County Agricultural Association . .	3,872		433	645	504	5,454			150	2,894	939		4,868
Clark County Central Agr'l Ass'n . . .	580	15	254	50		899		55	13	539	222	11	840
Clay County Fair Association . . .	607	50	272	170	108	1,207	75		100	906	225		1,306
Clinton County Agricultural Society . .	3,200	30	381	884	240	4,735	465	500	90	2,574	544	302	4,475
Decatur County Agr'l Society . . .	2,027	20	260	317	32	2,656	1,600	1,150	130	1,243	480		4,603
Elkhart County Agr'l Society . . .	2,461	64	472	373	124	3,494	145	112		1,466	340	24	2,087
Fayette County Fair Association . . .	2,668		524	599	100	3,891	75	141	106	1,865	168	135	2,490
Fulton County J. S. Agr'l Society . . .	1,366	75	35	139	485	2,100	470	483	247	642	245	21	2,108
Gibson County H. & A. Society . . .	3,477	40	163	414	916	5,010	97	776	110	2,080	266	373	8,702
Grant County Agr'l & Stock Ass'n . .	2,512		376	342	75	3,305		385	75	2,189	205	153	3,007
Greene County Agricultural Society . .	1,063		267	335	440	2,105	300	381	50	1,040	280		2,051
Hamilton County Agricultural Ass'n . .	2,201	5	102	390	100	2,798		458		1,615	721		2,794
Harrison County Agricultural Society . .	2,574			428	1,871	4,873		600		2,031	661	276	3,568
Henry County Agricultural Society . .	1,921	10	255	180	50	2,416			25	1,071	382		1,478
Howard County Agricultural Society . .	2,123	55		570	339	3,087	218	322	205	1,484	800	58	3,087
Huntington County Agr'l Society . . .	4,108	50	480	510		5,148		735	100	1,931	210	50	3,026
Jackson County Agr'l Society . . .	871	30	269	226	139	1,535	69	498	50	906	12		1,535
Jasper County Agricultural Society . .	923	30	158	195	51	1,357	163	28	84	901	124	109	1,409
Jay County A., H. & I. J. S. Company .	2,274		506	263	248	3,291		800	294	1,669	382	368	3,512
Jefferson County G. J. A. & M. Ass'n .	1,209			67	552	1,828	60	711		1,042	374		2,187
Jennings County J. S. Agr'l Ass'n . .	3,200	30	512	876		4,618		418	120	2,463	342	332	3,675

EXHIBIT OF AGRICULTURAL SOCIETIES—Continued.

NAME OF SOCIETY.	RECEIPTS.					DISBURSEMENTS.							
	Admission Fees.	License Fund Received.	Entry Fees.	Privileges Sold.	All Other Sources.	Total.	Rents and Old Claims.	Improvements.	Salaries.	Premiums Paid.	Expenses of Fair.	All Other Expenses.	Total.
Knox County Agr'l & M. Society.	\$3,318	\$30	\$720	\$1,499	\$104	\$5,671	..	\$950	\$490	\$2,939	\$1,095	..	\$5,474
Lagrange County Agr'l Society.	1,196	15	248	138	69	1,666	..	150	105	1,103	245	..	1,605
Lake County Agricultural Society.	994	..	..	591	363	1,948	..	..	..	1,300	539	\$52	1,891
Laporte County Agr'l Association.	1,587	100	410	289	620	3,006	..	851	100	1,537	425	..	2,913
Madison County J. S. Agr'l Society.	3,834	15	159	612	363	4,983	..	984	400	2,746	161	252	4,543
Marion County A. & H. Society.	..	..	..	..	..	..	..	..	50	121	..	..	171
Marshall County F. S. & M. S. Fair.	664	..	172	185	102	1,123	\$18	165	45	746	86	123	1,183
Montgomery County Agr'l Society.	8,699	122	1,873	1,107	247	12,048	..	..	450	7,926	340	..	8,716
Newton County Agricultural Ass'n.	805	10	210	232	45	1,302	109	100	..	999	109	65	1,382
Noble County Agricultural Society.	1,604	15	330	441	872	3,262	..	1,307	150	1,311	307	229	3,304
Parke County Agricultural Society.	1,930	..	..	..	951	2,881	625	183	50	2,513	157	580	3,951
Perry County A. & M. Association.	412	..	171	179	262	1,024	13	859	308	438	455	369	977
Pike County Agricultural Society.	2,147	..	506	917	11	3,581	..	..	..	1,765	455	42	3,429
Porter County Agricultural Society.	..	55	..	109	1,268	1,432	..	..	656	974	..	..	1,630
Posey County Agricultural Society.	1,945	..	339	837	275	3,396	..	2,000	172	2,648	298	..	5,118
Randolph County A., H. & M. Ass'n.	1,183	25	313	416	607	2,544	89	461	170	1,803	122	..	2,645
Rush County Agricultural Society.	3,930	98	682	1,030	1,061	6,801	..	853	383	3,816	383	37	5,472
Shelby County J. S. Agr'l Ass'n.	3,360	..	501	875	496	5,232	..	382	125	3,675	836	..	5,018
St. Joseph County N. I. Agr'l Soc.	..	..	..	..	..	11,745	..	..	..	..	..	..	8,815
Steuben County Agr'l Association.	2,522	..	255	285	90	3,152	..	625	50	1,322	265	22	2,284
Tipton County Fair Company.	2,006	295	49	201	73	2,624	958	..	100	1,305	311	..	2,674
Vigo County Agricultural Society.	1,673	95	505	344	2,584	5,201	..	186	427	2,031	981	1,500	5,125
Wabash County Agricultural Society.	3,648	25	450	471	192	4,786	77	1,394	487	2,259	688	200	5,105
Warren County A. J. S. Company.	988	281	100	322	150	1,791	..	178	100	1,012	341	..	1,631
Warriek County Agr'l Society.	1,548	337	266	..	25	2,176	..	42	218	1,379	..	..	1,689

Washington Co. A., H., M. & I. Ass'n.	1,819	15	457	283	1,741	4,315	248	117	150	1,850	513	1,437	4,315
Wells County Agricultural Society	1,056	..	..	200	..	1,256	212	115	166	1,232	214	142	1,232
Whitley County J. S. Agr'l Ass'n.	1,550	250	100	50	..	1,950	..	400	25	965	100	25	1,515
Whideton Union	1,233	..	129	317	135	1,814	..	200	65	1,235	351	..	1,851
Cambridge City A., H. and M. Ass'n.	2,100	..	418	315	285	3,118	300	225	125	1,815	225	175	2,805
Edinburg Union Agricultural Society	1,601	..	513	502	236	2,852	..	375	..	2,475	453	..	3,303
Fountain, Warren and Vermillion Ag- ricultural Association	1,725	35	207	369	550	2,886	..	72	150	2,105	336	70	2,733
Knightstown Union Agr'l Ass'n.	2,733	..	426	999	288	4,446	1,423	286	333	2,414	966	1,190	6,612
Loogootee A. and M. Association	2,166	..	412	708	368	3,654	..	529	130	1,925	150	277	2,411
Wayne, Henry and Randolph A. Ass'n	502	..	101	109	3	715	..	..	..	384	..	319	703
North Eastern Indiana Agr'l Ass'n.	3,248	10	480	1,040	1,395	6,173	1,526	401	245	2,566	1,255	109	6,102
South Eastern Indiana Agr'l Society	1,311	..	163	1,036	806	3,316	250	800	50	..	..	2,186	3,286
Switzerland and Ohio County A. Society	1,857	..	340	272	361	2,830	142	223	311	1,691	265	124	2,756
Wells and Blackford Agr'l Ass'n	1,163	..	244	326	841	2,574	20	50	112	1,150	125	..	1,457
New Ross Union Agr'l Ass'n.	1,949	..	291	442	365	3,047	50	158	490	1,950	255	82	2,785
Xenia District Union A. and H. Society	1,515	..	364	550	69	2,498	92	512	330	1,498	126	10	2,468
Orleans Agricultural Association	985	..	355	208	67	1,615	..	115	40	1,112	257	..	1,524
Eastern Indiana Agricultural Ass'n.	3,465	..	362	802	295	4,924	..	..	75	1,947	695	..	2,717
Tell City Fair Association	590	..	145	478	126	1,339	..	..	..	588	554	..	1,138
Lawrence District Association	845	..	56	111	139	1,151	..	275	40	826	195	..	1,336
Francesville Agricultural Society	327	..	113	46	..	486	..	..	..	322	113	51	486
Franklin Township Union Association, Marion county	359	..	67	31	95	552	..	100	50	389	100	143	782

INDIANA, 1883.

The preceding Annual Indiana Agricultural Report contains a general description of the State, including a statement of the immense resources, the very favorable and central location, the evidence of a healthful region, and the wonderful facilities for transportation. The importance of such information, and the attention thus attracted has been demonstrated by the frequent and repeated inquiries at the office of the Board of Agriculture for more detailed information, and has prompted the preparation of a local description by counties. This has been attended with much labor and care, and has the indorsement of the county officials, with a few exceptions not heard from.

The estimates for the number and size of farms and population is based on figures taken from the tenth census. The estimates of areas from the State Auditor's Report.

ADAMS COUNTY.

The surface of the county is comparatively level, and portions near the Wabash and St. Mary's rivers beautifully undulating. There were three small, wet prairies in the county, which have been thoroughly drained, and are the most productive and valuable lands for farming purposes within the county. The bottom lands comprise an area of some 90,000 acres. Excepting the wet prairie, the entire body of the county was heavily timbered with the finest oak, hickory, maple and other hard woods to be found in the world, about 52.6 being timbered. The sub-soil is clay and has no superior in lasting qualities, producing wheat, corn, grass, and the small

grains suitable to this latitude. It is also finely adapted to stock raising or dairy purposes, and quite a number of farmers are successfully manufacturing cheese. Three railroads pass through the county, one connecting with the Michigan pineries on the north, and Cincinnati on the south, another with Toledo and St. Louis, and the third New York and Chicago. The county is rapidly developing. Lands are cheap, as yet, but are rapidly advancing in price, so that it is impossible not to make a profitable investment. About one-half of the people are of German descent, the others immigrated from the older States. The county offers unusual inducements to people of small financial resources who are willing to work. The area of the county is about 331 square miles, with 15,385 inhabitants, containing 1,989 farms, averaging 97 acres each.

ALLEN COUNTY.

The soil of the county is composed principally of drift of the glacial period, and consists of vegetable matter and black and loamy muck-soil, the surface being sprinkled with bowlders deposited during that period. It varies as to productiveness. 48.8 per cent. of this county is timbered. In the western portion along the Toledo, Wabash & Western Railroad, there is a large amount of wet prairie land, which can only be cultivated at great expense, but when once put in order it is inexhaustible. This large prairie has just been surveyed by order of the Circuit Court under the general ditching law, and the commissioners appointed for the purpose report the cost at about \$250,000. The work has been ordered to be let. The uplands are rather productive, while the bottom lands, and a greater portion of the remainder of the county yield immense crops of all the cereals and other staples common in this climate. The county is abundantly supplied with water by the Maumee river, which is formed by the conjunction of the St. Mary's and St. Joseph rivers, at the city of Fort Wayne. The area of the county is 640 square miles, with a population of 54,763, and contains 3,593 farms, averaging 98 acres each.

BARTHOLOMEW COUNTY.

The county is generally level, with hills in the western portion, which resemble spurs of the Alleghanies, and are covered with oak. 38.5 per cent. of the county is timber. The inferior land is principally in this portion. The level and bottom land is a rich alluvium, mixed with limestone, with soil in the gravel; the fertile valleys were originally covered with oak, ash, hickory and walnut, which are being exported for the manufacture of fine cabinet work and furniture. The hilly portion of the county has a clay soil, upon which grass is chiefly grown. In this county there is a stretch of country about twelve miles long and six miles wide, familiarly known as "Haw Patch," which is the most beautiful and fertile land

found anywhere in the western country. The county is well drained by White river, numerous creeks and their tributaries flowing in all directions, affording a good supply of water for stock, and excellent water-power. The main productions are corn, wheat and grass, with an immense crop of hogs, of improved breeds. Great progress has been made in this line, and no county in the State furnishes to the market a better quality or greater quantity of pork. The geology of the county is summed up in the following: "The upper part is of red sandstone and gravel, the middle of clay marls and impure siliceous limestone, and the lower of mottled sandstone wholly siliceous." The area of the county is about 391 square miles, with a population of 22,777. The number of farms in the county is 2,207, averaging 110 acres each. The average value of land is \$26 per acre.

BENTON COUNTY.

The surface of the county is rolling, and contains more prairie land than any other county in the State. Standing upon a rise in the center, a view of almost the entire county can be had; in some places villages in the adjoining counties and in the State of Illinois can be distinctly seen. This is probably the finest body of land, of the kind, on the continent. The whole amount of timber land will not exceed 5,000 acres, or 2.6 per cent., distributed in numerous small groves and along the creeks. Formerly there was some marshy land in the county, but this has been generally drained, and is cultivated. Two ridges, almost parallel, run through the center of the county from east to west. The area of the county is about 430 square miles, with a population of 11,108. The county contains 1,406 farms, averaging 150 acres each.

BLACKFORD COUNTY.

The surface was originally covered with timber, 49.9 per cent., mostly oak, with some beech, ash, maple and other deciduous varieties. It is varied in appearance, consisting of plains and gently rolling land, with very fertile soil. The Salamonie river, running diagonally through the county in the northern portion, Big Lick creek in the southern portion, with a number of smaller streams, drain the county, with natural drainage surpassed by few other counties in the State. Almost all the marshy lands have been reclaimed by drainage. The main products are all the standard cereals and live stock, especially sheep, for wool. The hard wood timber is being utilized, to a great extent, in the manufacture of staves and hard wood lumber, and is a source of considerable revenue, heavy shipments being made annually. Limestone, for building purposes, is found in abundance for local consumption, and quantities of lime are burned and shipped to foreign markets. At Hartford, the county seat, there are extensive hub and spoke works, and a heading and stave factory. The area of the county is 169 square miles, containing 866 farms, averaging 100 acres each, with about 8,020 inhabitants.

BOONE COUNTY.

The county incloses an area of about 415 square miles, with a population of 25,922. The surface is rolling, except in the central portion, where it is level, abounding in bogs and marshes originally. At the mouth of Big Eagle creek there is some wet prairie land. On account of the great fertility of the soil on the flat land, the farmers have, by ditching, thoroughly drained the land, and immense crops of corn and hay are raised upon the level tract annually. The strong clay soil, on the undulating land, produces an unfailing yield of all the products common on the farm. The deep loam soil of the prairies is famous for corn and grass, except in seasons of long drought. Wheat, corn, oats, blue grass, timothy, and all the fruits, are grown in great perfection on these varied soils. The entire area of the county was 44.6 per cent. thick forest, but the drain upon it for fuel and manufacturing has very materially reduced the supply. In timber, walnut, ash, burr oak, sugar tree, elm and poplar predominate. Limestone and coal are foreign to its geological formation, but fine clay, for making brick, tiles and pottery, is found in abundance. The county lies wholly within the drift region of the glacial period, and the surface is covered with bowlders by the thousand, which are available for building purposes, in the absence of limestone. The county contains 3,167 farms, averaging 80 acres each.

BROWN COUNTY.

This county, situated in the interior of the State, is rather hilly, almost mountainous in places; about one-fifth of the county is rich bottom, with a like amount of level table lands in the southeastern corner, and 57.3 per cent. timber. The soil in the bottoms is well suited to the growth of corn, potatoes and wheat; fair crops of corn, oats and wheat on the hill lands, with crops of excellent quality on the table lands. The soil and climate are adapted to the growth of tobacco, which is a source of handsome profit to the producer. It is also noted for the superior quantity and quality of its fruit. Apples do the best on the hill-sides or ridges, while peaches, pears, apricots and grapes thrive in luxuriance on the warm tops of the high knobs and ridges. The county is well drained by numerous small creeks flowing in all directions, the main one being Salt creek, with its three branches. Highland ridges, in conformity with the square shape of the county, bound it. The timber on the hill-sides is white and black oak, chestnut and hickory, with poplar, cherry, jack oak and sassafras on the summits of the highest hills, and in the bottoms poplar, maple, walnut, cherry, elm and sycamore. The poplar and walnut, common in the bottoms and on the loamy hill-tops, have mostly been cut and sawed into lumber. Of white and red oak the supply is abundant, with a large surplus for export. Staves, hoop poles and tan-bark are a large source of revenue; the bark of the chestnut oak being of superior quality for tanning,

leather prepared from this bark having received premiums at European expositions. The only workable mineral, of any importance, is stone for building purposes, which is found and quarried extensively; it is of good quality. The county contains an area of about 303 square miles, with a population of 10,264. The county contains 1,355 farms averaging 120 acres each.

CARROLL COUNTY.

The surface of the county consists of bluffs, bordering on the streams, rising in some places and approximating hills, while but a short distance from these bluffs the country is comparatively level, and is 45.7 per cent. forest, densely covered with the various kinds of oak, walnut, beech, sugar maple, hickory, elm, ash and sycamore, which have been partially cleared for cultivation, the soil being excellent for the production of all the cereals, or edible grains, especially wheat, for which the county is notably the best in the State. The county is also rich in the production of all the varieties of vegetables and fruits, including apples, pears, peaches and grapes in great abundance, and of superior flavor and color. The county is furnished with excellent water power, and an abundant supply of water for stock, by the numerous streams passing through the county in every direction. The principal ones are the Wabash and Tippecanoe rivers with their tributaries. Limestone and building stone are found near Delphi, the lime companies producing about a million bushels annually, amounting to \$200,000, and employing 125 men. Clay of good quality for brick and tiles is found in great quantity. Sulphuret of iron is found. The bluffs are mostly constituted of sand and gravel, and furnish the material for constructing the roads. Hogs are a great product of the county. Considering the facilities of the county, the manufacturing interest is comparatively small, still of respectable proportions. The area of the county is about 365 square miles, with a population of 18,345. The number of farms in the county is 2,063, averaging 106 acres each.

CASS COUNTY.

The surface of the county is level, with occasional bluffs along the rivers. The entire county, especially to the south, was originally covered with a dense growth of forest trees of valuable quality. In the northern portion there is a quantity of prairie land, characteristic of all the lands in this section of the State. A rich, loamy muck soil of superior excellence is found along the Eel and Wabash rivers, which conjunct at Logansport. This land is especially adapted to the raising of corn and wheat, the latter being of superior quality. The geology of this county is of marked interest, and numerous quarries of stone have been opened, thereby promoting the researches of the scientist. An inexhaustible supply of limestone is

found along the Wabash, which is used extensively in the manufacture of lime, and for building purposes, and found to be very durable, as is demonstrated by the canal locks and bridge piers that were constructed of this stone at an early day. The lime rock is underlaid by magnesium limestone, the strata being from one to forty feet thick in many localities. It is called "freestone;" has been tested, and found to be very durable, and is much used for building purposes. The court house, several large churches, and many other prominent buildings in Logansport are constructed of this stone. Beautiful specimens of white sandstone and lithographic stone have been found. Bitumen and petroleum are found in insufficient quantities to be of any value. Clay of good quality is abundant, and is extensively used in the manufacture of brick and tiles. Gravel and sand is abundant and easy of access, and is now extensively used in the construction of roads. The county is a fine agricultural county—all the cereals and fruits common in this climate are grown in abundance. It has an area of about 403 square miles and a population of 27,611. Manufacturing is carried on at Logansport to a considerable extent, the splendid water power furnished by the Wabash and Eel rivers, and the numerous creeks throughout the county, being utilized by manufactories and mills.

Logansport is a railroad center of importance, having railroads running in nine different directions, the machine and repair shops of the P., C. & St. L. railroad being located there; has a normal school, good public schools, and first-class school houses; has magnificent water works run by water power, with twelve miles of mains. The streets and a number of business houses are lighted with electric light. The county is divided into 2,199 farms, averaging 107 acres each.

CLARK COUNTY.

The surface of the county is quite varied in appearance, having rich, narrow bottoms in the northeastern portion, extending to the larger and very fertile bottoms of the Ohio. This land is continually enriched by the disintegration of the rocks overhanging. The soil is of dark loam, and will always be productive. The hills bordering on the river are from 300 to 350 feet high, and are among the very best lands for the production of fruit. Near the head of Camp creek the land is wet, and the soil holds water, being of light colored clay. Near New Washington the clay soil contains some sand, which necessarily drains the country better than the lands above mentioned. In other portions of the county the surface is rolling, especially along the river, where it is much broken. Many peaks and knobs are found in the county, and in some parts the scenery is grand. About Jeffersonville an ash-colored clay is found, except where mixed with decomposed slate, which makes it darker and adds to its fertility. On the rolling land the drainage is excellent, but on the flats very poor. The soil is very productive, and near Utica the land is utilized for gardening purposes, for which it is notably the very best, supplying Louisville and other large cities with melons, sweet and Irish potatoes, and

all the smaller varieties of fruits. The principal crops in this county are wheat, oats, corn and grass; horses, mules, cattle and hogs, all of which are largely exported. There are many small streams flowing through the county, furnishing an abundance of water for stock and other purposes. Timber of all the common varieties abound, and, in addition, the persimmon, white mulberry, prickly ash, wild cherry, dogwood, gum and sumach. The forest area is 41.2 per cent. Iron ore and stone are found, the stone being quarried for lime and building purposes. The lime product, amounting to thousands of barrels annually, is a source of great revenue. The Southern Prison is located in this county, at Jeffersonville. The county covers an area of about 375 square miles and has a population of 28,610. The number of farms in the county is 1,859, averaging 116 acres each. The "Ohio Falls Car Works" are located at Jeffersonville, and give employment to about 1,000 men. Among other manufactories are two ship yards and one plate glass manufactory. There are also five mills for making hydraulic lime, with a capacity of from three to five hundred barrels per day each.

CLAY COUNTY.

The surface of the county is generally rolling, and rather wet, caused from the clay soil, which retains water, and, consequently, the county is not a first-class one, taken from an agricultural standpoint. The soil on the upland is, in the main, composed of drift, and is cold and wet, varying from an ashen gray to black loam, and requires good underdraining for successful cultivation, and produces immense crops of corn. Along the streams, on the bottom lands, the soil is composed principally of sand, with clay loam subsoil; on the prairies, which are small in extent, either a black muck soil or a black, sandy loam, which is the best land in the county, and adapted to the growth of all the grains, clover, grasses and orchard products. With proper underdraining, plowing and cultivation, the uplands have been made to yield good crops of all the staple products of the climate, and bounteous crops of apples, pears, etc. The timber (47.7 per cent. of the county) on the higher ground consists of white, red and black oak, hickory, ash, sugar tree and beech; on the bottoms, water, white and burr oak, gray ash, red bud, black walnut, dogwood and pawpaw; bordering on the streams, sycamore, cottonwood and burr oak. Saw mills are located on the Eel river, principally engaged in sawing walnut, oak and hickory. The great source of wealth in this county is its coal, which covers an area of 192,000 acres. The supply is inexhaustible. The block coal alone covers an area of 64,000 acres, with an average thickness of six feet; this coal is used in the manufacture of iron, without coking. There are now over fifty collieries and one large blast furnace in the county. The furnace has a capacity to turn out twenty tons per diem. The Chicago & Brazil Block Coal Railroad (branch of the C. E. & I.), Terre Haute & Southeastern Railroad, Terre Haute & Indianapolis, and the Indianapolis & St. Louis railroads furnish easy transportation,

switches being run to the principal mines. Several other railroads are projected through the county, and at least two of them will be completed during the current year. The demand for block coal is constantly on the increase. Good building stone is quarried in the county, for local consumption. It is a bluish white, coarse-grained sand stone, presenting a beautiful appearance. Fire and brick clays are also found, of good quality, a number of large earthenware potteries having been established in the county, which have proved to be paying institutions. The area of the county is about 351 square miles, with a population of 25,854. There are 1,904 farms, averaging 110 acres each.

CLINTON COUNTY.

The entire county is cut by numerous depressions, with the surface sufficiently undulating to afford fair natural drainage. In the western and southern portion there is a great deal of prairie land, the largest being "Twelve-Mile," by five miles in length; besides this there are "Two-Mile," Indiana, and some smaller prairies. The remainder of the county is 44.2 per cent. timber, including all the valuable varieties of Central Indiana, especially walnut, ash and poplar. Great quantities of walnut logs, hard-wood and walnut lumber are shipped annually, and are a source of great revenue to the owners of timber lands. The county is covered with the drift of the glacial period to a great extent, with no out-crops of stone of any consequence. The supply of pure water is abundant, with no large streams, but numerous small ones, and wells, which are artesian in their nature; and, although not reaching the rock, send forth thousands of gallons daily, without any perceptible change. This is a first-class agricultural county, producing all the products common to this climate and section in abundance. Six gravel roads lead to Frankfort, the county seat. The railway facilities for transportation were very meagre until 1872, since which time they have grown, until they are almost unsurpassed in the State. The area of the county is about 404 square miles, with a population of 23,472. There are 2,572 farms in the county, averaging 95 acres each.

CRAWFORD COUNTY.

The county, generally, presents a broken and hilly surface, a chain of knobs extending through it at an elevation, in some instances, of 200 feet above the rivers, with a comparatively level stretch reaching out toward this range, from the center. Excellent crops of wheat, oats, corn, potatoes, vegetables and grass are produced in the fertile river and creek bottoms, while fruit flourishes on the uplands and hilly portions; and increased interest is manifested, lately, in this branch of industry.

The county is rich in pasturage, and is probably best adapted to stock raising, the annual shipments of stock being very large, while the other products are consumed at home, with no margin for exportation. The Ohio on the south, and its principal tributaries, Big and Little Blue rivers, with their tributaries, drain the county and supply water in abundance. The forest area is 26.3 per cent. of the county, and consists of oak, ash, hickory, locust, walnut, chestnut and sugar trees. A fine quality of building stone is quarried, and excellent grit, for the manufacture of grind and whetstones, is found. One of the great and grand features of this county is an immense cave, known as "Wyandotte," which is twenty-two miles in extent, being one of the largest caves known to exist. It is one of the grandest and sublime pieces of nature's handiwork, and is visited by thousands of pleasure seekers every year. In some appointments it excels, in beauty, the "Mammoth Cave," of Kentucky. The area of the county is about 368 square miles, with a population of 12,356. The county is divided into 1,615 farms, averaging 102 acres each.

DAVIESS COUNTY.

The soil of this county varies from sandy soil to pure clay. The bottom land is a black loam, very rich and productive. The forest area of the county is 46.2 per cent. On the prairie in the northern part of the county it is of a light ashen color, with here and there ridges of brown clay soil, some of which are a little marshy, but are being improved by ditching. The high land is a clay loam with the exception of a strip of sandy soil two or three miles wide, extending along the west fork of White river, the bottom being from one to four miles wide between the river and the sandy soil. The productions of the county are corn, wheat, grass and fruit. The river bottoms yielding corn, for which they are the best adapted, though wheat and grass are grown with profit. The hilly land yields the largest crops of wheat, but still are well calculated to grow grass. The sandy soil in the western portion is especially adapted to the growth of fruit, apples, peaches, melons and other varieties are produced in abundance, and shipped to other markets. The mineral resources of this county are a source of great wealth, there being no less than fifteen coal mines in operation, besides iron ore which is found (about four feet in thickness, and covering several acres) at different localities in the county. Ochre is also found near Alfordsville, which when ground makes a durable paint. Good building stone is also found, now used in Washington, the county seat, for foundations and which can be utilized very well in the superstructure of buildings. This county, with its mineral wealth, needs a north and south railroad. The area of the county is about 421 square miles, with a population of 21,552. The county contains 2,178 farms, averaging 112 acres each.

DEARBORN COUNTY.

The land in the western and northwestern portion of the county is either level or slightly rolling, with the remainder broken or hilly, still not enough to prevent successful cultivation. The soil along the rivers and creeks is of a rich loam, both on the bottoms and uplands, and is unsurpassed for the production of corn, especially, and all the cereals. The timber of the county, 34.9 per cent. of its surface, consists of all the common varieties, such as elm, white, black, red, burr and chestnut oak, walnut, hickory, beech, soft maple, sugar tree, locust, ash, buckeye, sycamore and dogwood, walnut and burr oak occurring on the bottoms, with the other varieties principally on the uplands. Along the White Water the corn product is as great and thrifty as that of any bottom land in the country. The rocks are of the silurian period, the only stone of value found is the blue limestone, which is utilized in rough walls, and makes a good quality of quick lime. Eight of the largest distilleries in the State are located in this county, six at Lawrenceburg, one at Aurora, and one at Harrison, which consume a great amount of corn, and manufacture many thousand gallons of distilled liquors annually, furnishing employment to a number of men. The county is contained in the largest revenue district in the State. Lawrenceburg and Aurora are thriving manufacturing cities, each with a population of more than five thousand. The area of the county is about 300 square mile, with a population of 26,671. There are 2,360 farms in the county, averaging 80 acres each.

DECATUR COUNTY.

The surface of the county is generally level, with the southern portion slightly rolling, and better adapted to the growth of grass than for any other purpose. About two-thirds of the entire county borders on the streams flowing through it, and are equal to the best and most fertile lands in the State for productiveness. The county is drained by several creeks, which furnish an abundance of water for stock, etc., with no water power of any consequence. The county products consist, mainly, of all the cereals and stock, corn being the chief production, which is principally consumed in fattening hogs and cattle. Improved farms in the northern portion of the county sell for from \$100 to \$150 per acre, while in the southern and western portions land is not so good nor so valuable, being worth from \$50 to \$90 per acre. The county was, originally, covered with a fine forest, of which it has been almost wholly divested by the demands of trade, and in clearing for farming purposes. Of the timber still standing there are all the principal varieties of walnut, ash, hickory, beech, sugar tree and lind. In the south and west part of the county is found the celebrated "Greensburg building stone," about forty car loads being shipped daily from these quarries. This county is well underdrained with tile, and the farmers practice diversified farming. It contains wealthy, progressive farmers, and has no foreign capital as liens upon its real estate. The county contains an area of 374 square miles. Population, 19,779. The county contains 1,948 farms, averaging 115 acres each, with a total tax valuation, including personal, of \$11,000,000.

DEKALB COUNTY.

The surface of the county was, originally, covered with a dense growth of timber, with no prairie land. The forest area is now 44.4 per cent. of its surface. The St. Joseph river traverses the southeast corner, with tributaries flowing through the northeastern and central portion of the county, furnishing a good supply of water and power for running mills. There are a few small lakes, and but a limited quantity of swamp land in the county, which is easily drained and prepared for cultivation. The soil is very good, producing all the cereals and other staples common to this section. The county is almost totally void of all minerals, only small deposits of lead being found, and that not in paying quantity. The area of the county is about 356 square miles. Population, 20,225. The number of farms average 95 acres each.

DELAWARE COUNTY.

About seven-eighths of the entire county was originally covered with a dense growth of timber, the forest area now being 41.1 per cent. of the county, the remainder being of wet and dry prairie land, the wet producing plentiful crops of cranberries. The soil is very changeable, in some parts black loam, and in others sandy, in another clay overlaid with limestone, all occurring on the same farm. Many streams traverse the county, flowing in all directions, and affording a great amount of natural drainage, among these are the White and Mississinewa rivers with their tributaries. The principal timber in the forests is white oak, with some walnut, sugar maple, elm, beech, ash, hickory, poplar, tulip basswood or linden and sycamore. The wheat, corn, oat, potato, hay and fruit crops are abundant for local consumption, with a margin for shipment. The corn product is from 1,200,000 to 1,500,000 bushels annually. Horses, cattle, sheep and hogs are raised of fine quality, and exported. The county is traversed by almost one hundred miles of turn-pike roads. The county seat, Muncie, is one of the most flourishing and enterprising towns in the State, with numbers of fine business houses and residences. Its railroad facilities are excellent, it being situated upon the L., E. & W., and at the junction of the C., C. C. & I. and the Ft. W., C. & L. railways. The manufacturing industries are prosperous, including several large saw mills, heading factories, hub and spoke factories, handle factory, machine shops, flouring mills, besides the flax mill and bagging factory, the largest in the United States, owned and operated by James Boyce & Co. The county covers an area of 390 square miles. Population, 22,926. Number of farms, 2,363, averaging 100 acres each.

DUBOIS COUNTY.

The surface of the country is diversified with high hills on the east, and gently rolling or level plains in the southern and northern parts, interspersed with creek and river bottoms. The soil in the western half of the county is of best farming land and finely improved. Underdraining is very much needed, especially in the bottom along the Patoka river. The majority of the river and creek bottoms are composed of an accumulation of alluvium, very friable and fertile. On the lower knolls and valleys the soil is of sandy loam of a reddish tint, caused by the waste matter of the iron ores. On this land pears and other tender fruits may be grown with good results. In the southern portion the soil is composed of a reddish brown loam, and is best adapted to the growth of tobacco, of which large amounts are raised and exported annually. The forest area of the county is 56.7 per cent., and abounds in all the common varieties of timber. Poplar is very abundant, also oak, walnut and hickory, and large quantities of logs are floated down the Patoka river to other markets. The water facilities are of the very best in the State. The entire county is underlaid with fine coal, which has been developed to a small extent. The county also abounds in fine building stone. Rich iron ore outcrops in different parts of the county. Jasper, the county seat, is a great lumber market. The area of the county is about 420 square miles, with a population of 15,992, and contains 2,052 farms, averaging 115 acres each.

ELKHART COUNTY.

As in all Northern Indiana, the surface is the formation of the ice glacier drift, it being of the depth of one hundred feet or more, giving generally a warm, sandy, gravelly soil. The beautiful St. Joseph river enters at the northeast corner from the State of Michigan, running nearly south to Bristol, thence west nearly parallel with the north line of the State about five miles distant, receiving on the north side Christiana and Coble's creeks, and on the south Little Elkhart, Pine creek, Elkhart river, with its tributaries, Stony creek, Solomon's river, Turkey creek, and Yellow creek, and further west near the county line the Bango creek adds its waters to the St. Joseph. These many streams make Elkhart county the best watered portion of the State, affording the most ample and now well improved water power, particularly at the towns of Elkhart on the St. Joseph, and Goshen on the Elkhart rivers, as well as numerous powers elsewhere higher up these streams. The surface is beautifully level, the highest elevations on the south side of the St. Joseph south of Bristol river no more than one hundred feet. There are three prairies in the county, one on either side of the Elkhart, near its confluence with the St. Joseph, the other lying south of Goshen on the east side of the Elkhart river. The valley of the St. Joseph, and all north of that river, were originally oak openings equal to one-third of the area of the county. The remaining south two-thirds of the county were originally covered by dense, tall forests of magnificent poplar, walnut, ash,

maple, and basswood timber, the greater portion of which was destroyed to make place for the farms of the pioneer, long before it had become valuable. Great walnut trees, so curled as to be impracticable to split into rails, were with difficulty burned in log heaps, such as now would command a hundred dollars each. Some of this fine timber yet remains, and is utilized by numerous wood-working mills and factories. No region is superior for the growth of cereals. Wheat and corn are the staples. The warm sandy soil that predominates is particularly suited to and gives ample returns of potatoes, sorghum, strawberries, grapes, and raspberries, all of which are grown, and find market in the towns of Elkhart and Goshen, the surplus over, finding a sale in the Chicago market.

A beautiful feature, and one of great convenience, is the excellent roads that chequer the county on nearly every section line, and frequently roads are made between on the half and quarter lines. At the alternate section corners, the neat and comfortable public school house has its place and pleasant grounds, and often near it, as an accompaniment, is the country church, the structure giving ample assurance that the intelligence of the young and the well being and morals of all ages receive commendable attention.

The flat and low lands have been and are being brought into valuable use by extensive ditches and drains. There are no more valuable and productive lands than these, when drainage is intelligently applied. Each season witnesses the construction of new ditches, and the addition of good lands, made from what, before drainage, was useless and miasmatic.

This county is indeed a part of the peninsula of Michigan, quite insulated and nearly surrounded by the great fresh water seas, and like all that section, is particularly favored from the severities of winter by the deep, unfrozen waters, and the same mellowing effect gives a moist atmosphere in summer, and a sheet of constant snow covering in the winter, greatly aiding in summer the growth and preserving in winter the wheat and fruit crops. All these influences combine in the interest of the agriculturalist, so that no region in the United States produces such uniform crops as in this. Providence has nowhere spread out a more beautiful, rich, and valuable agricultural country than is the St. Joseph valley.

Minerals are nearly absent; none except bog iron ore, not in sufficient quantities to pay working, and brick clay that gives red and yellow brick sufficient for building requirements. The latter is of superior hardness and beauty, and is quite the equal of the famous Milwaukee yellow bricks.

The town of Elkhart and Goshen are noted for their manufacturing industries. At Elkhart are three paper mills, three flour mills and two starch mills; at Goshen are three flour mills, many furniture manufactories and wood-working factories, an extensive woolen mill, oil mill, and other manufactories, the varied products of which find markets through the Eastern States, as well as in the West, giving the advantage of employment for many persons, and drawing revenues to these points from wherever sales are made. These industries give employment to a numerous and intelligent citizenship, and gives great vitality and remarkable thrift to these growing towns.

Ample facilities for freight and travel are furnished by the Great Lake Shore Railroad that, coming from the west, divides into two branches at Elkhart, the one

making Toledo, through Southern Michigan, the other having the same objective point through the north counties of Indiana. The Cincinnati, Wabash and Michigan Railroad passes north and south through the center of the county, terminating at Benton Harbor, and the Chicago division of the Baltimore and Ohio passes through two townships in the southwestern corner of the county. On this last road is the town of Nappanee, the most recent made, and a thrifty village of the county.

The population of the county is 33,454, and rapidly increasing. The assessment rolls for taxation show the value of real and personal near \$14,500,000. The area of the county is about 452 square miles, divided into 2,777, averaging 98 acres.

FAYETTE COUNTY.

The county is generally well improved, divided into 1,051 farms, averaging 125 acres each. It is drained by the west fork of White Water and its tributaries, and several small creeks. Along the river bottoms the soil is rich and productive, composed largely of vegetable matter, clay, sand and lime. These lands have produced immense crops of corn for years. The uplands are of clayey soils, mixed with sand and gravel, which by good culture, rotating crops, and sub-soiling, fair crops are produced. The main crops are wheat, corn, oats, barley and potatoes, the corn crop exceeding all others over one-half. Good building stone is found of workable thickness in different sections of the country. It is known as the Cincinnati blue limestone. Clay is found in abundance and of good quality for the manufacture of brick. The area is about 211 square miles, of which 31.3 per cent. is forest. Population, 11,394.

FLOYD COUNTY.

The surface of the county presents a varied appearance, with level and rolling land, interspersed with hills, valleys and some bottom land along the streams. A range of knobs running through the county from north to south constitutes some of the best fruit land in the State, which is especially adapted to grapes. The valleys and bottoms of the Ohio are adapted to the growth of wheat, oats, corn, rye and barley, the soil being of deep black loam, occasionally mixed with clay, sand and gravel, with good natural drainage, always being dry and easily cultivated. The county is noted for the production of garden vegetables, of which great quantities are raised and shipped. The county is supplied with numerous streams, coursing in all directions, affording excellent mill sites, and an abundance of water for all purposes, along the banks of which are some excellent strips of timber land, consisting of trees of all varieties common to this section of the country. The oak

timber is especially fine, and is pronounced superior to that of any other portion of the State for ship building, wagon hubs, spokes, and other mechanical purposes. The forest area is 42.1 per cent. of the county. When cleared, the soil of these timbered lands is very productive. The mineral resources of the county comprise iron ore, manganese, black slate, limestone of different kinds, sandstone, silica and mineral springs. The limestone and sandstone found are both of great thickness, the former being used for building purposes, and the latter, which hardens by exposure, is used for door steps and other purposes. The county contains 79,525 acres, and the entire tax value of personal and real property is \$10,204,932. The area of the county is about 145 square miles.* Population, 24,590. It is divided into 1,085 farms, averaging 73 acres each.

FOUNTAIN COUNTY.

The surface of the county along the Wabash is composed of rich and fertile bottom lands, bordering on which are bluffs and uplands; adjoining these are table lands, sufficiently undulating to admit of natural drainage. Originally one-third of the county was fertile prairie, with a large growth of timber covering the remainder, growing to the edge of the prairie, with no "oak openings" intervening, walnut, poplar, oak and hickory predominating as the most valuable varieties. The forest area now comprises about 39.6 per cent. of the county. The streams of the county are Coal and Shawnee creeks, both flowing in the same general direction, (southwest). The productions of the county are principally wheat, corn, oats, potatoes and hay, in quantities for home consumption, with a margin for shipment. Horses, cattle and hogs of superior grades are raised in the county, and exported. Coal of a good quality, notable for its freedom from sulphur and other impurities, is found, and worked to some extent, about 300 miners being now employed. Good sandstone for building purposes exists, and salt water is found, which formerly was worked and supplied for local consumption. The works have been abandoned since the opening of the Wabash and Erie canal. It may still become a source of profit to the citizens. Several artesian wells exist in the county. The area of the county is about 391 square miles, with a population of 20,228, and divided into 2,088 farms, averaging 112 acres each.

FRANKLIN COUNTY.

The soil in the White Water river bottoms of this county is very rich and productive, composed principally of clay, sand, lime and vegetable matter, some of which has produced successive crops of corn for fifty years. Formerly wheat could not be raised profitably in the bottoms, but latterly since the soil has become somewhat exhausted by continual corn crops, wheat is grown. On the up-

lands the soil is gray with a yellow clayey subsoil about fifteen inches below the surface, and is productive. In the western part the soil is gray with subsoil of iron colored clay, which would indicate unproductiveness, still it to some extent deceives its appearance. The swampy lands in parts of the county are very productive, and although originally purchased at lower prices than the uplands, by intelligent drainage and tillage they are now considered the best and command the highest prices. The grain product consists of wheat, an average; corn, excellent and above an average; rye, very good; oats, good and an average crop; hay, enough for home consumption; hogs, about 50,000 head raised per annum for market. In fruits, apples, peaches, pears and grapes are abundant. The minerals are few and not worth mentioning, except building stone, of which about 1,500 car loads are shipped annually from one point, Laurel, at an average price of \$1.50 per perch of 25 cubic feet. Salt wells are found in some parts of the county, but the water is of such quality as not to render the working of the wells profitable. Clay of good quality for the manufacture of brick exists in abundance. The timber of the county, 41.3 per cent. of its surface, consists of white, burr, chestnut, red and black oak, walnut, sycamore, red beech, hickory (shellbark), pig nut hickory, white ash (abundant), blue ash (very valuable), hackberry, hoop ash, butternut, poplar, sugar maple (abundant), white and red maple, wild cherry, sweet gum, cotton wood, linden, honey locust, buckeye, gum, slippery elm, mulberry and small groves of red cedar. Brookville, the county seat, is a thriving town of 2,000 inhabitants. It is pleasantly situated between the two branches of the White Water, occupying a position, that for picturesque scenery and healthfulness, is not excelled in the State. The fine water power here is inviting for manufacturing purposes. The area of the county is about 387 square miles, with a population of 20,092, and divided into 2,123 farms, averaging 113 acres each.

FULTON COUNTY.

The surface of the county is diversified. About 15 per cent. consists of prairies, principally in the western half of the county, interspersed with oak openings. The Mud creek bottoms, an alluvial tract of several thousand acres of unsurpassed fertility, offers superior advantages for extensive grazing and dairy interests. The eastern portion of the county is mostly heavily timbered, the forest area being 40.4 per cent. of its surface, and containing walnut, yellow poplar, and other varieties, which is a source of much revenue, being extensively shipped to other districts. The surface is generally level, but in some places broken. The principal stream is the Tippecanoe river, with its tributaries. About five square miles of the county is covered with small lakes. The largest, Lake Manitau, or Spirit Lake, is about three miles by one, and contains an abundant supply of fish of many varieties, and furnishes to the inhabitants plenty of delicious cheap food. This is a good agricultural county, enough of the cereals, etc., being raised for home consump-

tion, with some for shipment to other markets. Bog iron ore is found in the marshes, and was worked some time ago. Coal and copper have been found in the drift, but not in paying quantities. No stone found, except bowlders in the drift in some localities, suitable and much used for foundations in building. Area about 360 square miles. Population, 14,301. Number of farms, 2,006, averaging 95 acres each.

GIBSON COUNTY.

Gibson county as an agricultural county stands at the head, and is the banner county of the State for wheat. In the eastern portion we have large coal fields, with fine water facilities for manufacturing sites. The forest area of the county is 13.6 per cent. of its surface, and consists of oak, walnut, hickory and poplar timber. The north, south and west portion of the county is one mass of rich black soil, well adapted to all kinds of grain, and well drained with a gradual slope to the Wabash river on the west. Our shipping facilities can not be surpassed in the State. We have three trunk railroads through our county which offer cheap rates to all shippers and manufacturers. Our county is well populated, and is one of the healthiest in the State. The farmers are an enterprising people, most all having fine dwellings and barns. And, to say more, we are out of debt, and have one of the finest court houses in Southern Indiana; and we defy any county to raise more wheat, corn and hogs than old Gibson, the banner county. Princeton, the county seat, has a population of 3,500 inhabitants, twelve churches, and has splendid schools, the public school building alone costing \$60,000, and no healthier point can be found in Indiana. The area of the county is about 475 square miles, with a population of 22,742. The number of farms is 2,283, averaging 103 acres each.

GRANT COUNTY.

The surface of this county is rolling in Monroe township, eastern portion, and along the banks of the Mississinewa river, which enters on the southeast, flowing diagonally to the north side, and emerging on the north near the western boundary, furnishing valuable water power at five different places. At some distance from the river the surface partakes of a level stretch, gently undulating. The entire county is well drained by this river and its numerous tributaries, and the soil is generally fertile, there being only a small proportion of thin and wet land. The timber in the county is 36.8 per cent. of its surface, and consists of sugar tree, hickory, elm, oak, walnut and poplar. Limestone is found along the river banks, but the principal quarries are near Marion, in the northern portion of the county. Lime is furnished for local consumption. The county produces an abundant sup-

ply of all the cereals, and staple products for home consumption, and exports large quantities. The fruit crop, especially apples, is a great source of revenue to farmers. The area of the county is about 411 square miles, and the population 23,618. A great amount of timber is shipped and a number of hogs slaughtered and packed annually for shipment to foreign markets. The county contains 2,606 farms, averaging 90 acres each.

GREENE COUNTY.

The county has a varied surface, being broken with hills of from 100 to 300 feet in height east of White river, while the remainder of the county (with probably the exception of a ridge between Eel and White rivers) is comparatively level, with considerable prairie land. On these prairies and bottom lands the soil is of sandy loam, easily cultivated, yielding large crops of corn, wheat, oats and grass. In the marshes and wet prairie land the soil is of a deep black muck, unproductive in its natural state, but being fast ditched and underdrained with tile, and producing, when thus reclaimed, the finest and surest crops of all cereals of any land, high bottom not excepted. A yellowish clay soil is found on the ridges and table lands, adapted to the growth of the cereals, but not in the same degree as the sandy loam. The finest crops of red clover are produced on this soil. The ridges on the east side of White river furnish highly favorable locations for the cultivation of fruits. The county is 49.4 per cent. timber, consisting of all the varieties common to this section of the State, walnut, oak, ash, etc. The county is rich in the deposits of siliceous hydrated brown oxide of iron and clay, iron stone, from ten to twenty feet in depth, which is not worked to any considerable degree, for the want of a means of cheap transportation. Quarries of good building stone are being worked along the line of the Indianapolis and Vincennes Railroad. The stone is a fine grained brownish gray sandstone, and can be taken out in slabs of any required length. The block coal area in this county is 156 square miles, about 80 of which lay in the coal measures proper, in which, to the depth of from 50 to 100 feet, two workable veins are found of the average depth of from 4 to 8 feet. No exploration has been made below 100 feet. Limestone (for the manufacture of quick lime), fire clay, and ochre are also found. The area of the county is about 541 square miles, with a population of 22,996. The number of farms is 2,750, averaging 111 acres each.

HAMILTON COUNTY.

The county is situated near the central portion of the State, and contains about 395 square miles, with a population of 24,801. The soil is of the very best quality, the surface being level in some parts and rolling in others, and is well adapted to the culture of wheat, corn and grass. It is well drained by White river, Stony, Cicero and Coal creeks, with their smaller tributaries. Along White river there

are some good dry prairies, and along Cicero and Stony creeks can be found some low wet prairie land. The county was originally heavily timbered with oak, poplar, walnut, maple, hickory and beech. The forest area is now 41.9 per cent. of its surface. It is one of the very best agricultural counties in the State. The mineral resources are as yet undeveloped. The county has good gravel roads, the gravel being supplied from gravel beds in the county. It has 3,055 farms, averaging 80 acres each.

HANCOCK COUNTY.

The county was, originally, very heavily timbered, with no prairie, and has still as much beech, sugar maple, oak, ash, walnut, elm, buckeye and hickory as any other county in the State, about 41.7 per cent. being timbered. Large beds of gravel and sand are found within its borders. The soil is well calculated to produce grain, of which wheat, hay, potatoes and corn are exported largely. Also, horses, cattle and hogs are raised and shipped to other markets. The country is well watered for stock raising. Blue river, the largest stream traversing the southeastern portion of the county, is suitable for mill sites; from this flow many tributaries and other small creeks in every direction. The surface of the county contains few hills, being almost flat, with some rolling ground along the streams. The area of the county is about 297 square miles, with a population of 17,123. It is divided into 2,050 farms, averaging 90 acres each.

HARRISON COUNTY.

The surface of the county is varied in appearance, consisting of level or bottom lands along the rivers and streams, with knobs rising to a height of from 200 to 300 feet along the Ohio river. These knobs are the most valuable lands in the State for fruit culture. The forest area of the county is 48.9 per cent. Many large orchards, some containing upwards of 5,000 trees are located here. The level or bottom lands are slightly rolling, and are peculiarly adapted to agricultural purposes, producing excellent crops of wheat, corn, vegetables and grass, which are largely exported. Stock raising is a prominent branch of industry, cattle, horses, mules and hogs, of superior grades are exported. The streams are numerous, and traverse the county in all directions, affording good natural drainage, and an abundance of water for stock, water-power and other purposes. The supply of excellent building stone is very large, can be quarried almost any size desirable, and is easily worked into all varieties of ornamental stone work. The oolitic limestone here, is almost as white as marble when dry, and is susceptible of a fine polish, being used for monuments and other ornamental purposes. There is also found a superior quality of lithographic stone. Saline and medicinal springs also occur in the county. The area of the county is 465 square miles, with a population of 21,326, and divided into 2,760 farms, averaging 105 acres each.

HENDRICKS COUNTY.

The general surface of the county is higher than that of adjacent counties, and is therefore provided with natural drainage, having a porous and easily cultivated soil; the surface is generally undulating, with portions quite level. It ranks among the best in the State as an agricultural county, producing excellent crops of wheat corn and blue grass. Broken land can be found along the creeks, still a very small amount of land is found not susceptible of cultivation. The county is well supplied with almost every variety of timber found in this section of the State, quantities of which are manufactured into staves and lumber, and shipped to other markets. The forest area comprises 43.2 per cent. of the county. The surface of the county is of drift deposit, no valuable stone being found for building purposes, but an abundance of clay for burning into brick. The drift is covered with a deep, rich muck soil, and in some places by clay loam. Small fruit culture is a source of profit; apples do well. The county is superior to a great many for stock raising and dairying, on account of the numerous water courses, living springs, and the peculiar adaptation of the soil to blue grass and other grasses which grow spontaneously. The county is well supplied with railroads, which make shipping facilities and markets handy to all parts of the county. The county is nearly free from debt, and the people generally prosperous. The area of the county is about 400 square miles, with a population of 22,981, and divided into 2,737 farms, averaging 91 acres each.

HENRY COUNTY.

The surface of the county is generally rolling, particularly in the western and southern portion, with many level tracts in the eastern and northern portion. The county was originally covered with a heavy growth of timber, with the exception of a small prairie in the northern part. The soil is almost invariably a black rich loam, and susceptible of a very high state of cultivation. The forest area now comprises 35.6 per cent. of the county. The streams of the county are Blue river, Flat Rock, Duck, Stony and Fall creeks, affording excellent water-power in the southern part, and an abundant supply for agricultural purposes. The rocks represented by the Niagara limestone of the Upper Silurian period, are the prevailing formation underlying the drift. The Niagara limestone is equal in quality to any building stone taken from the St. Paul or Greensburg quarries. The products of the county consist of corn, oats and wheat, principally, with enough of all the other staples to supply local demand. The area of the county is about 386 square miles, with a population of 24,016. The number of farms in the county is 2,454, averaging 98 acres each.

HOWARD COUNTY.

The surface of this county is quite level, so much so, in fact, as not to allow natural surface drainage. In the western townships it is not so bad as in the eastern. The soil is very rich and fertile, and well calculated to produce all the standard cereals raised in this and central portions of the State. The county is void of large streams, the principal one being Wild Cat creek, which flows from east to west; Deer creek rises in the center and flows in the same general direction. The land was formerly covered by a dense growth of poplar, walnut, ash, oak, and other varieties of deciduous forest trees. The soil is of a black muck or alluvial, loamy, and easily cultivated with proper drainage and tillage. The timber is a great source of wealth, being 47.7 per cent. of the surface of the county, the county seat ranking only second to Indianapolis in its export of hard wood lumber. For the past few years 6,000,000 feet of walnut, and 4,000,000 feet of other varieties, including principally poplar, oak and ash, have been shipped annually, while a large amount has been necessarily destroyed to bring the land under cultivation. There are fifty miles of good gravel roads in the county, the gravel being supplied from beds in the county. The surface of the county is stone drift underlaid by rocks of the Devonian age, and some strata of the Silurian. The minerals are chiefly limestone rock and black shale. A great amount of money has been expended in boring for petroleum, but to no purpose. Area about 290 square miles, and number of inhabitants 19,584. The county contains 2,176 farms, averaging 77 acres each.

HUNTINGTON COUNTY.

The county has an area of about 376 square miles, contains a population of 21,805, and is drained by the Wabash, Little and Salamonie rivers. The Wabash enters about the center of the eastern boundary, bends north and leaves near the center of the western boundary. Little river flows diagonally through, entering on the northeastern boundary, and forming a junction with the Wabash below the county seat. These rivers and their tributaries drain the county very thoroughly, necessitating very little artificial drainage. Early in the history of the county wet prairie land existed, but it has been very generally drained, and is under cultivation. The major portion of the county was originally covered with heavy timber, oak, beech, ash, maple and sugar tree, walnut, wild cherry, poplar and elm in level places, and sycamore along the streams. When the timber was removed the land was ready for immediate cultivation, as surface drainage was performed by nature. The forest area is now 48 per cent. of the county. The geology of this county is similar to that of Wabash on the left. Fossil limestone formations are found in profusion, furnishing a rich field for collectors. Lime of excellent quality is burned extensively, and exported. Excellent building stone is found, which, when fully developed, will furnish a source of profit. The farmer is well paid for his labor in good average crops of all the staples generally grown in this portion of the State. The county contains 2,476 farms, averaging 92 acres each.

JACKSON COUNTY.

Nearly three-fourths of the surface of the county consists of table and bottom lands, and the remainder of clay and sandy loam. The southeastern portion is undulating, with sandy hillocks from fifty to one hundred feet high, with the exception of a short range of knobs, with an elevation of 360 feet, and some sandy, clay hills near Seymour, called Chestnut ridge. The bottoms are bordered by ridges and terraces, and are very broad. A portion in the northeastern section is broken and traversed by ridges, with an average elevation of 280 feet, spreading out into broad table lands in places. The valleys along the small streams are narrow. No county in the State has better agricultural resources than this one, the clay and sandy loam producing the largest crops of corn, wheat, clover and grass. The sandy soil is best adapted to corn, and the clay soil to wheat, though both can be produced on either with great success. The sandy soil is the very best for the propagation of watermelons, of which at least 2,000 acres are cultivated annually, the sales amounting to \$60,000. A dry season is best adapted to their growth. Chestnut Ridge is where fruit is grown in abundance, the warm, sandy loam soil giving the fruit a fine flavor. There are 75,000 bearing peach trees, and 45,500 bearing grape vines, including all the best varieties, growing on this ridge. The grape vines are generally healthy, bear well, with no failures in the crop. The flavor of the grapes grown is remarkably fine, and wine has been made from the Ives seedling equal in flavor, color and body to French Burgundy. The county was originally covered with thick woods, and furnished timber of all the common varieties found in the State. The forest area covers now 47.3 per cent. of its surface. The minerals of the county are building stone (buff and gray-colored sandstone), brick, clay and ochre. The area of the county is about 503 square miles, with a population of 23,050. The number of farms in the county is 2,128, averaging 131 acres each. •

JASPER COUNTY.

The soil in the northern and eastern parts of the county is sandy, with occasionally low prairies, ridges and knolls. The southwestern part has a gently rolling surface, and is made up of fertile prairie. The northern boundary is drained by the Kankakee, which flows along in almost an unbroken line, while the southern portion is drained by the Iroquois river. There are numerous indications of ancient river beds from 300 to 1,200 feet in width, and ridges of white and yellow sand are found, where oak and hickory trees flourish in profusion. Groves of timber abound along the streams, there being one belt about two miles wide, growing in rich soil, the remainder of the land is covered with "oak openings" or "barrens." The kinds of timber are not numerous, but of good quality. The forest area is 27.1 per cent. of the county. The entire county is underlaid with limestone of the Upper Silurian age, from the surface of which excellent lime is burned. The sand-

stone of the county is used extensively for building purposes. Bog iron ore of excellent quality exists, covering an area of 6,000 acres, found about two or three feet below the surface, and will become an immense source of wealth in the course of time. The county produces corn, wheat, oats, rye and all the grains, in an average degree, enough for home consumption. The fruit crop is generally good, with apples in abundance. The area of the county is about 552 square miles, with a population of 9,464, and divided into 1,350 farms, averaging 156 acres each.

JAY COUNTY.

The county of Jay is about eighteen miles long from north to south, and about twenty-one and a half miles in width, running east and west. In surface configuration it is gently rolling and undulating in the greater part, there being considerable level land along the course of the Salamonie river, which runs through the county from southeast to northwest. The most of the central part of the county is a rich alluvial land, underlaid with clay, and many deposits of sand and gravel. In many localities there are extensive deposits of splendid coarse gravel, over which the soil is a most excellent sandy loam. There is now constructed about eighty miles of gravel roads, of which sixty-five miles are free pikes. There is plenty of gravel for making roads. In many parts of the county there are enough bowlders readily obtained for walling cellars, wells, etc. In the northeast part of the county, on the Wabash river, there is an abundance of limestone suitable for building and making lime; also, within two miles of the county seat, Portland, there is plenty of limestone, but being in the bed of the river, it can only be quarried during the dry season. The county produces all the cereals, and is noted for its fine fruits. The timber consists of oak, ash, hickory, walnut, sugar, beech, elm (red and white), sycamore, maple, and comprises about 50.3 per cent. of its surface. The county is rapidly being well drained by tile and open ditches. Some of the land is low, but all of it is capable of perfect drainage. There are many tile factories that supply the great demand. The area of the county is about 380 square miles, with a population of 19,282, and divided into 2,357 farms, averaging 93 acres each.

JEFFERSON COUNTY.

The surface of the county is diversified in appearance; rolling in the western portion, table lands in the central, elevated bluffs on the Ohio, and lofty hills in the eastern and northeastern portion, from 200 to 400 feet high. The county is supplied with water, in the western and eastern part, by springs issuing from fissures in the rock, while in the central or table land parts the supply is obtained from cisterns and wells. The Ohio river, on the south, is bordered by precipitous

bluffs and rich alluvial bottoms. Agriculture is the principal wealth of the county, and skillful farming is very remunerative, the soil presenting many natural advantages; but in some localities fertilizers and under-draining is required. Especially on the flats is drainage necessary, while the introduction of blue grass and clover is also beneficial. The principal products are corn, oats, wheat and hay. Latterly the onion crop has proved remunerative. In fruits, apples and peaches are grown extensively on the Ohio river bluffs. Some attention is given to the production of grapes and to bee culture. The tobacco crop is proving very remunerative, the hill land being peculiarly adapted to this crop, the quality being first class. Stock raising is fast becoming an important feature in the products. Cattle and hogs are fattened in large quantities and shipped to eastern markets. The manufacturing interest in Madison (the county seat) is largely on the increase, therefore our home markets will be much better in the future. The streams are remarkable for the deep gorges which they cut, sometimes attaining a depth of 300 feet, and for the numerous waterfalls, varying from a few feet to eighty feet in height. The timber of the county consists of all the common varieties, and is of fine quality, and comprises 37.1 per cent. of the surface of the county. Good clay for brick is found, with an abundance of gravel for the construction of gravel roads. Gray limestone, for the manufacture of lime, and all ordinary building purposes, especially for making fences, exists in large quantities. The area of the county is about 358 square miles, with a population of 25,977, and divided into 2,340 farms, averaging 115 acres each.

JENNINGS COUNTY.

This county does not contain any extraordinarily fertile tracts of land, still it averages with many of the other counties in the State. The surface is uneven and stone of excellent quality underlies the ground. The soil of the entire county is strongly mixed with clay, hence drainage is very beneficial, especially on the "flats," which when properly drained, will become the most valuable lands in the county. Fertilizers placed on these lands afford a generous return. The rolling lands bordering the numerous streams are more productive than the "flats," and along the bottoms of several creeks rich alluvial soil is found which yields bounteous corn crops. The principal productions of the county are corn, wheat, oats, rye, buckwheat and hay. Fruit generally does better than any of the other crops. A large amount of land is in pasture, and numbers of mules, horses and cattle are raised for the Cincinnati and other markets. Hogs are also fattened and shipped to the various markets. Quite a trade has sprung up in the shipment of milk to Louisville and other cities. The timber of the county (45.6 per cent. of its surface) consists of oak, beech, sugar tree, poplar, hickory, walnut, ash and sweet gum. A great amount of this has been cut and manufactured into staves, lumber and shingles, and shipped to other markets. The minerals of the county of value are building stone, limestone for lime, brick and tile clay. The North Vernon

blue limestone beds are very valuable, and extend over a large portion of the county. It is being extensively used in the abutments of bridges and for foundations, and in government buildings, throughout the State. Until lately, since the opening of the Ohio & Mississippi, and Vernon, Greensburg & Rushville railroads, the meagre facilities for transportation was a serious impediment to the opening of more quarries, but now a number of first-class quarries have been opened, and the stone are being shipped all over the country. The area of the county is about 370 square miles, with a population of 16,453, and divided into 2,034 farms, averaging 111 acres each.

JOHNSON COUNTY.

The surface of the county generally presents a level appearance, although slightly rolling, with the exception of a range of hills from the south running in a northwesterly direction, and terminating at the western boundary. South and west of this range, covering about one-tenth of the county, the land is broken. In one locality in the county, (Hopewell) land ranges from \$80 to \$150 per acre, it is settled by enterprising and wealthy citizens, the soil being the most fertile in the State. In a greater portion of the county the soil is composed of a dark loam, rich and productive, and produces as good crops of corn and wheat as the best bottom lands. In the rough portions the soil is of heavy clay and produces only fruit and grass to any extent. The bottom lands are very fertile, and in the vicinity of Edinburg command from \$100 to \$150 per acre. The county ranks with the first counties in the State in stock raising, and boasts of having herds of horses and cattle of the best and most improved breeds found in the United States. There is also great improvement in the hogs and sheep. An abundance of water and good drainage is supplied to the county by the numerous streams, the most prominent being Big Blue river, with its tributaries. Valuable timbers are found in the county, the walnut being of rare quality, and is shipped East and used in the manufacture of musical instruments. Johnson county boasts of her number of gravel roads, and the high state of their preservation. The area of the county is 195,851 acres, or about 298 square miles, with a population of 19,537, and divided into 2,113 farms, averaging 92 acres each, and with an assessed average value of \$32.12 per acre, with a total valuation of \$11,637,940.

KNOX COUNTY.

The surface of the county is well watered, streams flowing in every direction, affording eligible sites for mills, and an abundance of water for stock. We find extending along the rivers and streams, bottoms from one to three miles wide, formerly prairie land, but latterly covered with a dense growth of timber. Terraces composed of sand and alluvial soil built up by drift, from five to thirty feet high,

border these bottoms. In the central part, from north to south, runs a range of hills, the soil of which is very sandy, having accumulated for ages, and was probably the bank of a river. The soil on the bottoms is unsurpassed in richness, and will support any crop. The great product of the farm in this county is corn; although other grains grow abundantly, this crop is surest on account of the frequent freshets breaking over the levees. Only once has this crop failed in fifty years, (the season of 1875) and much of it was saved. The soil on the uplands is not as good, it being more sandy, but by proper irrigation and culture, can be made more productive. Wheat, corn, barley, garden vegetables and hay are produced on the uplands. The forest area comprises 34.8 per cent. of the county. Oak and ash timber prevails. The highest points of the hilly portion are peculiarly adapted to fruit, especially the smaller varieties, such as grapes, peaches, pears and other tender fruits. Almost all the land in the county is utilized, and all could be, with proper irrigation on the uplands, and by protecting the bottoms from overflow by the construction of dikes. Where this has been done it plainly demonstrates the practicability of more of the same kind of labor. In 1875, 95,182 acres were cultivated, producing 1,629,367 bushels of grain, (1,164,764 of this being corn), 82,330 head of live stock (46,340 head being hogs), 40,000 bushels of potatoes, and nearly 6,000 pounds of maple sugar. There is a coal seam from seven to ten feet in thickness, underlying the entire county. Ten mines are now in operation, producing as good quality of coal as any in the State. Clay for the manufacture of brick, tiles; terra cotta and potters' ware is plentiful. Stone of different quality, and suitable for building and other purposes is found. Other minerals are also found, such as iron ore, copper, lead and gold, but not in paying quantities. Fruits requiring a genial climate grow in abundance, and peaches, apples, pears, grapes and berries mature with superior flavor and excellent color. The area of the county is about 500 square miles, with a population of 26,324. There are 2,125 farms, averaging 122 acres each.

KOSCIUSKO COUNTY.

This county lies in the northern portion of the State, midway of the counties running east and west, the surface being very similar to that of Marshall and Noble counties, lying on either side, level and gently rolling in the north part, and in the central and southern portions hilly. It is well watered by the Tippecanoe river, which drains the numerous lakes in the county, and also by Turkey creek. The largest lake is about five miles long and two miles wide, known as Nine Mile lake; besides this there are a great number of smaller lakes, which are very beautiful, and in connection with the rivers, furnish an abundant water supply. The water power is plentiful, and utilized by flour mills; the water is constant, not being influenced by dry seasons, as the streams are, in most instances, fed by the lakes. A great amount of fertile prairie land is found in the northern section, the principal ones being Big and Little Turkey and Bone prairies, covering an area of 10,000

acres, with some wet prairies which are being drained and placed under cultivation. The prairie lands are interspersed with the woodlands, and were rapidly claimed on account of their easy cultivation. A large growth of walnut, oak, hickory and maple is found along the edge of the prairies, denoting the natural productiveness of the soil. The southern portion of the county, originally covered with timber, has been cleared for cultivation. The forest area is now 44.2 per cent. of the extent of the county. The county contains an area of about 540 square miles, with a population of 26,494, and contains 2,937 farms, averaging 100 acres each.

LAGRANGE COUNTY.

The surface of all that portion of the county lying southeast of Lake Michigan belongs to the glacial period, and is composed of drift, of decayed vegetable matter, black loam, and is sprinkled with boulders. In the eastern and northern portions a number of small prairies exist; they are drained by creeks, the tributaries of the St. Joseph river. The southern portion is drained by Elkhart river. The remainder of the county was formerly densely wooded with timber of all deciduous varieties; 33.5 per cent. of the county is now forest. A variety of soil exists, composed of clay, loam, gravel, sand and extensive peat beds; good clay for the manufacture of brick is found. The entire county is well watered and drained, and the facilities for raising wheat, corn, oats, grass, and almost every variety of apples, pears, peaches, grapes, plums, cherries and berries, both wild and cultivated, are unsurpassed in this latitude. The lakes are very numerous, there being a total area of 4,000 acres covered by these lakes. Pigeon and Fawn rivers furnish good water-power, but it is not utilized to any great extent. The area of the county is about 374 square miles, with a population of 15,630. There are 2,154 farms, averaging 102 acres each.

LAKE COUNTY.

There are 1,670 farms, averaging 133 acres. The forest area is but 16 per cent. of the county. The area of this county is about 480 square miles, with a population of 15,091. The soil in that portion of the county bounded by Lake Michigan is sandy, covered with dwarf pines and cedars, and is consequently unproductive. To the south of this on Turkey creek, there is a rich alluvial or muck soil, which is very productive. Along the Kankakee there is a belt of low, marshy ground, about five miles in width, while in the central portion of the county a great variety of soil exists, consisting of rolling and prairie lands, and some wood lands. The soil is diversified, composed of clay in some places, pure sand and yellow sand, quite productive in others, and rich loam in other localities. The prairies, of

which Door and Lake are very beautiful, cover two-thirds of the entire area of the county. One-half of the county is drained by the Kankakee, whose banks are in accessible (except to the "trapper" in pursuit of his calling), on account of the marshes hemming it in. There are several small lakes in the county, and innumerable small creeks and rivers. Of the grains, corn is the principle product, although wheat, oats, potatoes and other staples are produced in considerable quantities. Some iron ore is found in the marshes. The county was first settled in 1834, and across its center runs the water shed, which separates the waters of the Mississippi valley from those of the St. Lawrence basin.

The improvements of the harbor at the mouth of the Calumet at South Chicago promise to make it one of the best harbors on the lake. The town of Hammond, on the Calumet, is the only point in the county that has attracted manufactures or large industries. A slaughter house with a capacity of killing 1,000 head of cattle per day, works utilizing the slaughter house, a spring factory, a distillery for vinegar and highwines, and an oleomargarine factory are located here. Lumber is brought here in large vessels, the river being navigable to this point and beyond.

LAPORTE COUNTY.

The county is situated in the northern part of the State, bordering on Lake Michigan, containing an area of about 503 square miles, and has a population of 30,985. The county contains 2,368 farms, averaging 122 acres each. The northern portion is somewhat broken and hilly, originally covered with timber. White pines of large growth occurred, which have been cut and sawed into timber, very few trees remaining. Oak and hickory are the most prevalent kinds of trees in this section. The forest area of the county comprises 23.8 per cent. of its extent. The soil here is of a stiff blue clay, with occasional beds of gravel and sand, very thin and only moderately productive. Marshy spots and peat bogs occur in the highest lands, and clear springs are not uncommon. The center of the county is mostly prairie land, dotted with groves of oak, hickory, elm, etc. The principal prairies are the Rolling and Door, lying respectively in the eastern and central portion, the soil of which is light, sandy, easily cultivated and very fertile, producing all the cereals, grasses and fruits. The limited supply of timber renders the cultivation of osage orange hedges necessary. Small streams of water traverse these prairies in all directions, flowing into the Kankakee. Near the county seat, Laporte, there are several small lakes, from a quarter to one and one-half miles in length, shallow at the edges and gradually descending to a depth of from ten to fifty feet. They have recently all been connected by canals, large enough for the transmission of a small steamer for the accommodation of pleasure parties. They fluctuate in depth, gradually sinking from five to seven feet during a period of from six to ten years. Until recently these lakes have not been a source of revenue to the county, beyond affording ice and fish for local consump-

tion, but latterly extensive ice houses have been constructed, numbering fifty, and containing in the aggregate 1,000,000 tons of ice, and now these "Northern Lake Ice Companies" furnish a great amount of ice to Chicago, Louisville, Lafayette, Cincinnati and Indianapolis, and employ a number of men who could not, at this season of the year, work at anything else.

At Michigan City a good harbor is located which has cost a half million of dollars already in construction, and from which 50,000,000 feet of lumber and a like amount of shingles and lath is shipped annually, besides a great amount of coal, iron ore, lime, cement and hay. The Northern Penitentiary is situated here, and some manufacturing is done. The county is furnished with transportation facilities equalled by none other in the State. Fish is also a source of revenue in the county, many thousand tons being shipped to the West annually.

LAWRENCE COUNTY.

The surface of the county consists of gently undulating plateaus, drained, naturally, by deep valleys in the north and northeastern portions, with hills toward the center, and rather rough and broken in the south and southeastern portions. The main stream in the county is the east fork of White river, flowing with a rapid current, with rich, clear, pure spring water, bending in its course, and affording the best of water power, and the finest locations for mills and manufactories. There are also many smaller creeks, traversing the county in every direction, furnishing natural drainage to almost the entire county. Along these streams we find the alluvial bottoms occurring, the richness of which is known to the entire State. The soil is well suited to the production of corn, wheat, oats, grass and tobacco, of which immense quantities are exported annually. Stock of all kinds, classes and grades are raised and shipped extensively. The timber of the county was formerly very dense, including all the common varieties which grew, in some instances, to very large dimensions. The timber now covers 44.4 per cent. of the county. The White Sulphur Springs, located at Avoca, Bedford and Indian creeks, are said to contain great medicinal properties. The finest quality of stone, for building purposes, is found in the county, and is utilized in Indianapolis, Cincinnati, Louisville and St. Louis markets, being used in the construction of the finest business houses and residences. Iron ore is also found. The celebrated Kaolin mines, operated by a Cincinnati company, have been very successful, the county containing the finest potter's clay found in the State. There are several caves in the county, and an abundance of sand and gravel for local use in the construction of highways and railroad beds. The area of the county is about 454 square miles, with a population of 18,543. It contains 1,764 farms, averaging 157 acres each.

MADISON COUNTY.

The surface of the county is generally level, though undulating, and in some places hilly, along the White river and Fall creek. The county is traversed by numerous streams, furnishing an abundant supply of water, and excellent natural drainage. Almost the entire county is either under cultivation (the soil being very good), or so that it can be easily drained and prepared for the propagation of crops. The timber consists of all the common varieties, and covers 39.4 of the county. The area of the county is about 439 square miles, with a population of 27,527. It contains 2,811 farms, averaging 92 acres each.

MARION COUNTY.

The surface of the county is generally level. The county, although possessing no mineral wealth, has in its soil the potency and pledge of inexhaustible wealth. Our glacial drift furnishes the material for a soil that answers every agricultural demand. Being formed by the decomposition of almost every variety of rock, it holds the elements of all in such a state of fine division as to give it excellent absorbant properties, and enable it to retain whatever artificial fertilizers may be added. In its natural state, the soil of the county lying so nearly level, becomes readily saturated with water, and having no means of exit beneath, except by slow percolation through the clay, the water is long retained. In the alluvial or bottom lands, and in the terrace or second bottom formations this objection is relieved by a stratum of gravel or coarse sand a few feet below the surface, which rapidly transmits the water downward, and relieves the saturated surface soil. The same effect is produced on the clay uplands by a system of tile drainage. The process of tile draining the level clay lands of Marion county is progressing rapidly, and in a few years the whole county will present a plain of unsurpassed fertility. White river has a course of over thirty miles through the county, and its tributaries, Eagle and Fall creeks, with other small creeks and streams give ample facilities for farm and stock purposes. The area of the county is about 367 square miles, 38 per cent. of which is forest. Population, 102,782. It contains 2,730 farms, averaging 85 acres each.

MARSHALL COUNTY.

The surface of the county is rather undulating. The portion east of the Michigan road, which cuts the county in twain, was formerly densely wooded, containing a great many of the largest forest trees. The northwest part of the county, west of the Michigan road, was also densely wooded. The timber which originally covered the county consisted of walnut, poplar, beech, sugar, ash, elm, hickory and oak, which of late years has been shipped, furnishing a great source of revenue to

those who in the early settlement of the county saved the timber. 50.7 per cent. of the county is now timbered. In the western portion of the county we find oak openings numerous, and in the extreme western portion considerable wet prairie land. All the wet lands of the county are fast being drained under the draining law of the State. Marshall county is fast becoming one of the finest agricultural counties of the northern portion of the State. The county is drained by Yellow river and its tributaries. A large number of small lakes exist, which are the favorite resort of hunters and fishermen. Maxinkuckee lake, in the southwest part of the county, is justly becoming a great pleasure resort for people of leisure during the heat of summer. Artesian wells are found about Plymouth and in the northwest part of the county, where a permanent flow of pure water is easily obtained. The Pittsburg, Ft. Wayne & Chicago, the Baltimore & Ohio, and the Nickle Plate, three of the great trunk lines of railroad, traverse the county from east to west, and the Indianapolis, Peru & Chicago, and the Vandalia Extension, pass through the county, via Plymouth, from north to south. There are other roads in contemplation. These roads furnish ample means of transportation. The area of the county is about 439 square miles, and the number of inhabitants is 23,414. It contains 2,442 farms, averaging 104 acres each.

MARTIN COUNTY.

The county is broken by hills, which, in some instances, reach a height of 300 feet, composed principally of limestone grit and carboniferous limestones. The bottoms along the east fork of White river are very extensive. The soil is a sandy loam, very rich, producing large crops of corn and wheat. The upland is chiefly a clay soil, but generally produces most excellent crops of wheat, timothy, clover, peaches and apples. It is less attractive to the agriculturalist than Daviess county, on account of its broken appearance. Taken as a whole, the county is below an average in its agricultural productions. The timber of the county, 59.1 per cent. of its surface, consists of black walnut, poplar, all the varieties of oak, hickory, sugar tree, maple, cottonwood, dogwood, sycamore, locust and lind. Coal exists in abundance, and of good quality. Iron ore is found, but of what commercial value is not known, as it has not been worked. Both lime and sandstone, of good quality, are found. Clay, for the manufacture of pottery, is found in abundance, and two potteries, located in the county, turn out 92,000 gallons of ware annually. Mineral springs, of great medicinal value, exist, and three springs, located in the county, are the resort of many in search of health and rest during the summer months, hotels for the accommodation of guests being provided. The mineral wealth of this county, although comparatively undeveloped, is probably equal to that of any other county in the State. The number of acres of land is 206,565, and the total tax valuation of real and personal property is \$2,070,252; in this estimate no account is taken of the mineral wealth. The area of the county is about 345 square miles, with a population of 13,475. There are 1,704 farms, averaging 120 acres each.

MIAMI COUNTY.

The soil of the county is rolling in many places, but not enough to prevent easy and thorough cultivation. The greater portion of the lands in this county are bottom lands, the remainder clay subsoil. It is traversed by many streams, running from east to west, Eel river draining the northern portion, Wabash river the central, and Deer and Pipe creeks the southern boundary, necessitating in consequence, a large amount of fertile land. Between these streams there is a considerable stretch of level country, with some oak openings on the table lands; but, as a rule, the country is timbered with oak, walnut, hickory, maple and other valuable woods, which, in the early settlement of the county, were very plentiful, and now, covering 40.7 per cent. of its surface, are an item of no small proportions. The exposed rocks are of the Upper Silurian age, and take the place of the limestone found further west on the Wabash. The county has some valuable building stone, which has not, as yet, been extensively worked; and some fine limestone for burning into lime, which makes a strong cement. Almost all the grains common in this climate are grown in the county to a greater or less extent, and furnish an abundance for home consumption. Orchard crops do well, and were plentiful the past season. The county covers an area of about 370 square miles, with 24,083 inhabitants, and divided into 2,223 farms, averaging 100 acres each. The railroad facilities of the county are good, and there are about eighty miles of gravel road, mostly free, with more in construction.

MONROE COUNTY.

The surface of this county is quite diversified, the entire eastern portion being very hilly, almost mountainous, the southern part gently rolling, the western portion rather level, the northern somewhat hilly, while the central is undulating. The soil is generally adapted to the growth of wheat, corn, grass, and tobacco, the latter grown in the southwestern portion of the county. Fine fruit, principally, apples and pears, is grown throughout the county. Horses, mules, cattle, hogs, and sheep are raised and extensively shipped.

The minerals found are iron ore and coal in the southwest part. Building stone, equal to any in the State, is found throughout the county. Sand and gravel are in great abundance.

White river bounds the extreme northwestern portion of the county. The other principal streams are Bean Blossom, Salt and Clear creeks. All these creeks have numerous branches emptying into them. The county has 49.2 per cent. of its extent covered with timber, consisting mostly of sugar tree, maple, poplar, oak, walnut, beech and hickory.

The State University is located at Bloomington, the county seat. The area of the county is about 400 square miles, with a population of 15,875, and divided into 1,932 farms, averaging 123 acres each.

MONTGOMERY COUNTY.

The surface of the county is of level table land, rather elevated, and sufficiently rolling to admit of natural drainage. The forest area is 42.1 per cent. of its surface. Sugar and Raccoon creeks and their tributaries flow through the county in all directions, draining it. The county contains a great amount of rich land which is very productive. The soil is diversified in different sections, still the greater portion of it is very productive, producing wheat, corn, oats, hay and potatoes in abundance. The fruit crop generally averages well with the other counties. Three lines of railroads pass through the county seat, radiating in all directions, and affording good facilities for transportation. Wabash College, one of the best institutions in the State, is located here, which has a very superior faculty, and has, since its organization, launched forth some of the most noted men Indiana has produced. Manufacturing is carried on in the county to a limited extent at this point. The area of the county is 495 square miles, with a population of 27,316, and divided into 1,670 farms, averaging 177 acres each. The streams of the county are fed by perpetual springs, and even in seasons of great drought a fair supply can be relied upon. One-half of this valuable water power is not utilized. Medicinal springs exist in the county. Gravel is found in abundance for the construction of roads, of which there are 239 miles in the county, mostly free. Clay for the manufacture of brick and tile is found in every neighborhood. There are 26 tile factories in the county, which not only supply the local demand but ship largely to Illinois.

MORGAN COUNTY.

The surface of the county is to some extent rough, broken and hilly, elevations extending on either side of the river. The soil on the uplands is best suited to the growth of wheat, oats, potatoes and grass. The remainder of the county is slightly undulating, with low land along the White river bottoms, from a mile to two and one-half miles wide, principally valuable for the raising of corn, but almost as well adapted to grass. The hilly portions, especially on the knobs, produces the most excellent varieties of fruit in abundance. Great quantities of corn, wheat and hay are shipped annually, and the county is rich in the production of the better grade of horses, cattle, hogs and sheep. The principal stream in the county is the White river, which, with its numerous small tributaries, furnishes an abundant supply of water for stock, and is a great source of drainage. The country is heavily timbered with walnut, poplar, oak, ash, beech, hickory, elm and buckeye, the forest area being 42.2 per cent. of its surface. Building stone is found near Martinsville suitable for foundations and rough masonry, and enters extensively into local use. Our sandstone is in unlimited quantities, and has been pronounced by the State Geologist as superior to any found elsewhere in the State, and equal to the best Ohio sandstone. Sand and gravel are found in abundance for the construction of roads, etc. The area of the county is about 384 square miles, with a population of 18,900, and divided into 2,041 farms, averaging 122 acres each.

NEWTON COUNTY.

Newton county is bounded on the north by the Kankakee river; on the west by the State line between Indiana and Illinois; on the south by the township line between townships 26 and 27, and on the east by the range line dividing ranges 7 and 8 west, and contains ten townships.

In Grant and Jefferson townships, on the south, the soil is a rich, black loam, and very productive. Although the surface is somewhat level, the drainage is good, and is principally northward into the Iroquois river, which runs in a general westerly and southwesterly course through the county, and near the north line of these townships. The only timber in this part of the county skirts the banks of the Iroquois, and contains the several species of oak, hickory, elm, ash and black walnut.

In Washington and Iroquois townships, next north of Grant and Jefferson, the soil and surface of the land is similar to that in the last named townships, with excellent drainage south into the Iroquois river. Washington township contains a belt of timber in the north central part, comprising several hundred acres, principally burr oak and hickory.

The two central townships, Beaver and Jackson, comprise the dividing ridge between Beaver creek and the Beaver lake marshes on the north, and the Iroquois slope on the south. These townships consist of high, rolling prairie, of rich, black, sandy loam, with clay subsoil, and excellent drainage north and south.

The four north townships, McClellan, Colfax, Lake and Lincoln, comprise what is known as the Beaver lake region and the Kankakee slope. This part of the county consists of sand ridges and marshes, or low prairie lands, the latter largely predominating. These sand ridges are principally covered with a thin growth of timber, principally white oak and black oak. They grow a good quality of native grass, and when properly manured, produce superior crops of grain, and are especially adapted to growing small fruits and vegetables.

The soil in the low lands is a black, sandy loam, and very rich and productive, and wherever they have been properly drained, agriculture and stock raising is carried on successfully.

This part of the county is susceptible of easy drainage down Beaver creek, and, also, into the Kankakee river. The surface of the lowest part of this territory lies from twenty-five to forty feet above the water level on the Kankakee river. The area of the county is about 391 square miles, 7.5 per cent. being timbered, with a population of 8,167, and divided into 1,095 farms, averaging 200 acres each.

NOBLE COUNTY.

Oak openings, alternating with hills, the two being about evenly divided, compose the general surface. Several small prairies occur, the largest being located near Ligonier. On the timber land, 43.6 per cent of its surface, the soil is composed of loam and clay, with a stiff clay subsoil, and is unusually productive.

MONTGOMERY COUNTY.

The surface of the county is of level table land, rather elevated, and sufficiently rolling to admit of natural drainage. The forest area is 42.1 per cent. of its surface. Sugar and Raccoon creeks and their tributaries flow through the county in all directions, draining it. The county contains a great amount of rich land which is very productive. The soil is diversified in different sections, still the greater portion of it is very productive, producing wheat, corn, oats, hay and potatoes in abundance. The fruit crop generally averages well with the other counties. Three lines of railroads pass through the county seat, radiating in all directions, and affording good facilities for transportation. Wabash College, one of the best institutions in the State, is located here, which has a very superior faculty, and has, since its organization, launched forth some of the most noted men Indiana has produced. Manufacturing is carried on in the county to a limited extent at this point. The area of the county is 495 square miles, with a population of 27,316, and divided into 1,670 farms, averaging 177 acres each. The streams of the county are fed by perpetual springs, and even in seasons of great drought a fair supply can be relied upon. One-half of this valuable water power is not utilized. Medicinal springs exist in the county. Gravel is found in abundance for the construction of roads, of which there are 239 miles in the county, mostly free. Clay for the manufacture of brick and tile is found in every neighborhood. There are 26 tile factories in the county, which not only supply the local demand but ship largely to Illinois.

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This part of the county is susceptible of easy drainage down Beaver creek, and, also, into the Kankakee river. The surface of the lowest part of this territory lies from twenty-five to forty feet above the water level on the Kankakee river. The area of the county is about 391 square miles, 7.5 per cent. being timbered, with a population of 8,167, and divided into 1,095 farms, averaging 200 acres each.

NOBLE COUNTY.

Oak openings, alternating with hills, the two being about evenly divided, compose the general surface. Several small prairies occur, the largest being located near Ligonier. On the timber land, 43.6 per cent of its surface, the soil is composed of loam and clay, with a stiff clay subsoil, and is unusually productive.

On the oak openings the soil is lighter and contains more sand; is easily cultivated and is the best in the county. The prairie soil is of dark peaty loam and sand, having a subsoil of gravel or sand. The products of the county are corn, wheat, oats and the grasses, while some attention is given to fruits, which have proved to be remunerative. Originally lakes existed in the county, which have grown up with aquatic plants, grass and shrubbery, and become marshes or peat bogs. Of timber white oak is most abundant, with a sprinkling of all the other common varieties of trees; the kinds used in the manufacture of furniture and cabinet work have been almost exhausted. Besides the marshes mentioned above, numerous small lakes occur at intervals throughout the county, numbering probably one hundred, which, surrounded as they are by forest trees in some places, and the golden cereals in others, present a very picturesque appearance. But very little capital is invested in manufacturing. Bog iron ore and marl exists in the county, the former being worked to some extent from 1845 to 1850. The area of the county is about 403 square miles, with a total tax valuation, including both real and personal property, of \$7,836,825, and containing a population of 22,956. It is divided into 2,399 farms, averaging about 100 acres each.

OHIO COUNTY.

The soil of the county is generally good along where the streams flow. The prevailing rocks are of the Lower Silurian. There is drift upon the uplands, while the river terraces consist of modified drift. Receding from the river bottoms and terraces, which are often a mile in width, the surface of the county presents a series of rugged but fertile hills, then a broken upland, and finally the wet flats. On these flats the water stands on the surface a great portion of the year, possessing but little natural drainage. The river bottoms produce immense crops of corn, being manured by the occasional overflow of the river. The higher bottoms not subject to overflow, and not so well supplied with vegetable matter, are better adapted to wheat. Potatoes and grains are extensively raised in all parts of the county, except on the "flats," where the soil is of stiff, cold, wet clay, and will not allow the moisture and roots to penetrate. The forest area of the county is 31.9 per cent. of its surface; white oak and beech and sugar maple are the main timber, with other species of oak and hickory, black gum and dogwood, common; and walnut, poplar and sassafras growing on the "breaks." Blue and limestone are found suitable for rough work, but will not bear dressing. Lime is burned in sufficient quantities for home consumption. The area of the county is about 85 square miles, with a total tax valuation of \$1,827,505. Population 5,563, and contains 524 farms, averaging 100 acres each.

ORANGE COUNTY.

The surface of this county is somewhat diversified; the eastern and northwestern portions are rolling, while the remaining portion is hilly. The soil is also variable, nearly all the varieties common to the State being found, adapted to the culture of wheat, corn, grass and oats, which are produced in abundance for home consumption, with a heavy shipment to foreign markets. Peaches and apples are the chief fruit products, from which brandy is manufactured and exported to a considerable extent. Stock raising has improved latterly, and a large shipments of cattle, horses, sheep, mules and hogs are recorded annually. The county is furnished with an abundant supply of water, and is drained by numerous streams, the principal one being the Patoka river, rising in the southeast corner of Stamper Creek township. One stream in the county—Lost river—flows for many miles under ground, and rises again at Orangeville. At many places the ground over the river has sunk, presenting the peculiar spectacle of a river flowing under ground, from twenty to forty feet below the surface. The timber of the county (41 per cent. of its surface) is, principally, the various species of poplar, oak, beech, sugar maple, walnut and elm, from which there is an extensive shipment of poplar and walnut. Of minerals, there are several stone quarries located in the county, and the celebrated "Hindoostan" oil whetstones are manufactured here. The celebrated West Baden and French Lick mineral springs, famous for their healing qualities, are located in this county. The area of the county is 387 square miles, with a population of 14,363, and divided into 2,003 farms, averaging 123 acres each.

OWEN COUNTY.

The surface of the county, with the exception of some bottoms and a few tracts of wet land, is rolling—a medium between the hilly region on the east and the level stretch on the west, north and south. The west fork of White river and other streams traverse the county in all directions, furnishing, to a great extent, natural drainage. The soil in the bottoms, along the streams, is a sandy loam, very rich and fertile, where wheat and corn are chiefly grown, with rich clay soil, well calculated to produce wheat, grass and oats, on the uplands. The principal timber of the county is walnut, poplar, sugar tree, white, black, red, burr oak and beech, and covers 38.6 per cent. of its surface. The coal of Owen county is situated in Marion and Jefferson townships, the seams ranging from three and one-half to five feet in thickness, and of superior quality for the manufacture of iron. Subcarboniferous lime and sandstone are found extensively, of any desired thickness or length. The county shows a very fair agricultural exhibit, all the grains being produced. The area of the county is about 376 square miles, with a population of 15,901, and divided into 1,961 farms, averaging 130 acres each.

PARKE COUNTY.

This county consists principally of upland, with a small portion of alluvium or bottom land, and with 33.8 per cent. of its surface timbered. Almost every variety of soil found in the State can be found in this county. Along the Wabash and other streams, alluvial or muck exists, which are the richest, perhaps, of any bottom lands in the West. On Big Raccoon creek these bottoms are large enough for good farms; on Sugar creek, not so extensive, but equally as productive. A small portion of the county is sandy, a narrow belt extending along the Wabash bottom to the northern line of the county. Nearly two-thirds of the entire county is loam upland, having, of all other varieties of soil, the best general agricultural adaptation, producing corn, wheat, oats, potatoes, and the very best varieties of grass (especially blue grass), for pasturage and grazing. Wheat and grass also grows luxuriously on the clay soil found in small sections. There is a very limited proportion of waste land, either by overflows or otherwise, and not to exceed five per cent. The climate and soil are peculiarly adapted to the production of fruit, including apples, pears, cherries, grapes, strawberries, quinces and plums, of superior color and flavor. Sugar creek has a fall of about five feet to the mile, furnishing an abundance of water power. One hundred and sixty square miles of this county is underlaid by coal, with an average thickness of three and a half feet. The lime and sandstone of the county affords building material to supply the local demand. Fire clay and iron ore are also found, and few locations can be pointed to where all the requisites to the manufacture of iron exists so conveniently grouped as in this county. The area of the county is about 439 square miles, with a population of 19,460. It is divided into 2,230 farms, averaging 120 acres each.

PERRY COUNTY.

A large portion of the surface of the county is broken by hills which, in some instances, reach a height of 400 feet. Very picturesque, but not very attractive in an agricultural point of view. In the valleys small streams with fertile borders occur, while the extensive bottoms along the Ohio river are very fertile. The soil of this bottom land is principally sandy loam, and especially adapted to the growth of corn, potatoes, turnips and cabbage, an average crop of potatoes being 125 bushels to the acre, and of cabbage 3,000 heads to the acre. These vegetables yield handsome returns to the producers, as but little expense is incurred in their cultivation. The table lands are well adapted to clover and fruit, especially the latter, of which some of the finest orchards in the State exist in the county. The county is principally settled up by Germans and French, who by careful tillage, grow good crops of corn, wheat, barley, oats and grass. The mineral resources of the county employ a large per cent of her population, lime, sandstone and coal being found in large quantities and of superior quality. Sandstone is found from twenty to forty feet thick without a seam, blocks of almost any size being obtained. The timber of the county, 65.1 per cent. of its surface, consists of all the varieties common to this

section; the trees are very large and of fine quality for lumber, much of which has been cut and shipped. The county is well supplied with water by numerous streams flowing through it in all directions. Manufacturing is extensively carried on in the county. At Rome there is a large cotton factory and an extensive sewer pipe and tile factory. Tell City manufactures furniture to the amount of \$1,000,000 annually. The area of the county is about 370 square miles, with a population of 16,997. The county contains 1,647 farms, averaging 117 acres each.

PIKE COUNTY

Is located in the southern part of the State, the east fork of White river divides it from Daviess county, and the main river, after the junction of the east and west forks, forms the boundary with Knox. Gibson adjoins it on the west and Warrick on the south, and Dubois on the east. It has an area of about 326 square miles. The first and second bottoms of White river contain about 45,000 acres of tillable lands. This land is exceedingly productive, producing from 60 to 90 bushels of corn per acre. Its fertility is not exhausted by continuous cropping. The deposits left by the overflow of the river keep it up in this connection. It is very seldom that crops are lost by an overflow. The high waters usually occur in the winter or early spring. The land outside of the White river and Patoka bottoms, is gently rolling and is very productive, producing good crops of wheat, and all the other cereals. Tobacco is also extensively cultivated, more especially in the southern parts of the county, and the quality produced compares favorably with the best varieties raised in Kentucky. All grasses succeed well, and the Kentucky blue grass is indigenous to the soil. The county is well watered by numerous streams, which are fed by never failing springs; also, excellent and lasting water is obtained by digging or boring wells from fifteen to twenty-five feet. The whole county was originally covered with a dense growth of timber, of which white oak, poplar, hickory, gum, sugar tree, and other varieties still abound, covering 50.8 per cent. of its surface. The entire county is underlaid with a superior coal, the veins being from 4 to 111 feet thick.

The health of the county will compare favorably with any other section of our State. Our schools are fully up to the requirements of the times, and our churches are numerous and flourishing. Notwithstanding Pike county was organized in 1816, it is comparatively a new county, on account of our want of railroads. Our rich agricultural and mineral lands have been overlooked, and consequently our natural resources are undeveloped. But those disadvantages which we have so long labored under, no longer exist. We have two railroads running through the county, and in addition we have steamboat navigation on White river nine months in the year, which gives cheap freights for the corn and other products raised on the river.

Lands in this county are comparatively cheap, considering their excellent quality, and the advantages we now have of cheap transportation of the products of the soil, both by rail and river.

The population of the county is 16,383. It contains 2,175 farms, averaging 87 acres each.

PORTER COUNTY.

The surface of the county is low and level in the southern portion, with marshes (extending from the Kankakee) from one-half to four miles in width, which are being drained, and improved for cultivation. The streams of the county separate about ten miles from Lake Michigan, and flow into the Kankakee and Lake Michigan. In some portions the land is extremely rolling, ridges occurring often, but no portion so much so as not to be susceptible of cultivation. About one-third of the county consists of "barrens," which are fertile and productive. The remainder, except the marshy land, is covered with a large growth of timber—14.6 per cent. of the surface of the county. A number of lakes are situated in the county, the larger being a mile in extent. The area of the county is about 410 square miles, with a population of nearly 17,227. There are 1,793 farms in the county, averaging 128 acres each.

POSEY COUNTY.

The surface of this county was originally covered with a thick growth of forest trees, of good quality, which are now becoming scarce, owing to the amount shipped to other States, and the desire of the farmers to get more land to cultivate. The forest area is now 39.1 per cent. of its surface. The surface is rather undulating, excepting in the "pocket," where it is level and subject to overflow, remote from the rivers the land is high, approximating hills. The soil is of a sandy loam, and best adapted to wheat, which is generally cultivated by the farmers, while in the lower portions adjoining the "pocket" corn can only be raised with profit, as the land is annually overflowed in February and March, thus precluding the production of any grain requiring more than one season in planting and harvesting. The soil is composed of the deposit annually added by the overflow of the rivers for ages. The farmer generally raises from seventy-five to 100 bushels of corn to the acre on this land. At a depth of from twenty to thirty feet, the soil is found to be composed of leaves, decayed sticks, black earth and sand or gravel. It is not improbable that this was at one time the bed of a lake, or that of the Wabash or Ohio. The land is the most profitable for raising grain, and but little grazing is done. Two hundred thousand acres are in cultivation, about 2,000,000 bushels of grain, and about 45,000 head of stock, (principally hogs) are raised annually. A

greater portion of the shipments of grain are South, owing to the cheap river transportation, there being but one east and west railroad, (the Evansville & St. Louis). There is plenty of timber in the county to supply manufactories, and fuel is almost inexhaustible. The county is almost void of workable minerals, only one coal mine and one stone quarry being in operation. The area of the county is about 388 square miles, with a population of 20,857, and divided into 2,085 farms, averaging 96 acres each.

PULASKI COUNTY.

The surface of the county is level or slightly rolling, about equally divided between prairie lands, barrens and heavily timbered land. The timber, 41.4 per cent. of the surface of the county, consists of walnut, ash, oak and other valuable timber. The table land between the streams requires drainage for successful cultivation, which has been done in some places by ditching. A portion of the Grand prairie of Illinois extends into this county. The cereals are extensively raised, in addition to large quantities of hay, the land being fairly productive. The pasturage for the grazing of cattle and the raising of hogs is of the very best, and is carried on to a great extent. Fruit is grown in the county quite extensively, and yields good crops. The mineral resources of the county are very limited, bog iron ore in the marshes being the only one found of any importance. The facilities for transportation are very good, several railroads traversing the county, with excellent gravel roads. Tippecanoe river is the principal stream, which, with its tributaries drains the entire county, and in addition, furnishes good water facilities. The area of the county is 432 square miles, with a population of 9,851, and divided into 1,384 farms, averaging 113 acres each.

PUTNAM COUNTY.

The surface of the county is quite undulating in the eastern and southern portions, with hills in the southern and central parts, and bluffs along the streams. The soil, generally, is easily cultivated and very productive, growing corn, wheat and hay in abundance, and, in fact, all the cereals and staples to a greater or less extent. Walnut and Deer creeks, uniting in the southern portion and forming Eel river, afford an abundant supply of water and a limited amount of natural drainage. Walnut, poplar, oak, hickory, ash, sugar tree and beech exist in quantity sufficient to supply the local demand, the forest area of the county comprising about 39.7 per cent. of its surface. Three railroads traverse the county from east to west, and connect with roads running north and south, thus affording good facilities for transportation. The area of the county is about 476 square miles, with a population of 22,501, and divided into 2,513 farms, averaging 125 acres each.

RANDOLPH COUNTY.

The surface of the county is rather elevated, and Prof. Cox, in the Geological Report, locates the highest point of the State in the south part of the county. There are streams rising within its borders and flowing in all directions. White river rises in the south part and makes a circuit northeast of some six miles, then flows west through the central part of the county. The Mississinewa river enters the county on the northeast and flows west through the entire breadth of the county, while White Water Valley embraces the southern portion of the county, though no part of the river itself is found therein. Its chief branches in Randolph are Noland's Fork, Green's Fork, Martindale creek and West river, forming a great amount of natural drainage, which, with the richness and variety of the soil, places this county foremost among the agricultural counties of the State. All the cereals are grown in the county, and yield good crops. Horses, cattle and hogs are raised, and a great number exported annually to foreign markets. Corn is the main product, there being on an average of 2,050,000 bushels annually, with wheat, rye, oats, grass, clover, barley, and all the fruits, in large quantities. The area of the county is about 444 square miles, 43.2 per cent. of which is timbered. Population 26,435. It is divided into 3,094 farms, averaging 92 acres each.

RIPLEY COUNTY.

The geological formation of the county is the limestone of the Lower Silurian. It lies in beds of blue limestone, with intervening spaces of clay. The soil of the county is chiefly clay. Along the streams the alluvium deposit and the mixture of the sand renders this portion exceedingly rich and productive. Immense crops of grain are raised on this portion of the county. Where the clay predominates, as is the case on the more elevated portions, good crops of hay are raised and large amounts exported. Timber covers 46.8 per cent. of the county, and consists of oak, hickory, beech, sugar tree and a small quantity of poplar and walnut trees. The oak is manufactured chiefly into staves. Ready facilities for transportation are offered by the Ohio & Mississippi, and the Cincinnati division of the I. C. & L. railroads, which traverse the county in an eastern and western direction. The streams are the Laughrey, Otter, Cedar and Graham's creek and Ross' run. These, with their numerous affluents, traverse all parts of the county, furnishing water for stock and farm use, but not for manufacturing purposes. The area of the county is about 438 square miles, with a population of 21,627, and divided into 2,956 farms, averaging 96 acres each.

RUSH COUNTY.

The surface is covered with soil composed of the alluvium of ancient river beds, and is very fertile, being easily pulverized, with scarcely any waste land. The richest land was originally covered with swamp oak and underbrush, with water to a depth of two feet in some places. This has all been reclaimed by a course of underdraining. In some localities the drains are four miles in length, and extending in every direction. Unlike the counties where there are large manufacturing interests to enhance the value of lands, this county is almost wholly dependent on the richness and fertility of her soil, farming and stock raising being the principal occupations. Corn is the main production, and is utilized in fattening stock to a great extent. Wheat grows best on rolling ground, or on ground well drained, and following a corn crop, as the growing of corn for a number of years partially exhausts the soil. Of the fruits, apples grow nicely and are of fine flavor. The more tender fruits, as peaches and pears, do not grow so well. There are no ridges in the county for the proper protection of these fruits. The county was formerly one vast forest, of very large trees of all the varieties common in this section of the State, walnut, poplar and hickory in some cases growing to a height of 70 feet without a limb. The timbered portions (15.1 per cent. of the county) have been fenced for pasturage, blue grass growing in luxuriance. The county is well watered and drained by several small rivers and their tributaries, which in addition afford good water power. The surface is generally rolling enough to allow drainage of a majority of all the ponds and swamps. Springs are found over the entire county, and consequently the water courses are seldom dry, drought being comparatively unknown here. Little variation in the crops is produced by excessive rain fall. Stone of good quality is found which is quarried and exported. Clay for tile and brick is found. The county covers 264,960 acres. The price of uncultivated farm lands ranges from \$40 to \$60 per acre, or cultivated from \$60 to \$100. The county is well supplied with gravel roads. Rushville, the county seat, is improving very fast. There are four railroads centering here, and another talked of. Rushville offers splendid inducements to manufacturers. The area of the county is about 393 square miles, with a population of 19,238. It is divided into 2,152 farms, averaging 113 acres each.

ST. JOSEPH COUNTY.

The surface of the county is different as to the composition of the soil in different sections. Here we have the light sandy soil, from original barrens, then the sandy loam of the thickly wooded districts, and again the decayed vegetable mold of the prairies, and the peat beds of the marshes and meadows, generally containing a large proportion of silica, which is best adapted to the propagation of wheat, and consequently we have an extensive crop of this particular cereal. Nowhere (except in Illinois and the Wabash bottoms) east of the Mississippi is the corn crop

excelled. The fruits are also very abundant and of the finest quality. There are several small prairies in the county, the largest being about nine miles in length, which are very beautiful, and are worth on an average of \$100 per acre. The forest area is 35 per cent. of its surface. Along the Kankakee the marshes are becoming drier, and a peat bed some sixty miles in extent has been discovered here, which will in time furnish an inexhaustible supply of fuel and become very valuable for the manufacture of gas. The county seat, South Bend, is one of the most extensive manufacturing towns in the western country, and gives employment to thousands of mechanics. In wagons alone the product annually is \$2,500,000, and employing 1,500 hands. The total value of manufactured products approximate \$11,000,000, annually employing 4,500 hands. Mishawaka is also an extensive manufacturing place, producing about \$2,000,000 annually; wages paid nearly \$2,500,000 annually.

Through this county flows the St. Joseph river, a deep and rapid stream, which is mainly supplied with springs of pure water which line its banks, and gush up from the river's gravelly bottom. The high banks, covered with oaks and cedars, make a beautiful sight, and preclude the possibility of its ever overflowing its banks. This river affords as fine and reliable water power as is to be found in the West, as the numerous manufacturing establishments that are using this power fully attest.

The railway facilities are excellent. The Grand Trunk, Lake Shore & Michigan Southern, and the Michigan Central, the Baltimore & Ohio, pass through from east to west, and the C. W. & M. & Wabash line pass through the county from north to south. The Detroit division of the Grand Trunk and the Vandalia will be completed to South Bend the present season.

The enterprising character of the people is demonstrated in various ways. In addition to the great manufacturing and agricultural interests set forth above, different parts of the county have centralized into ten cities, towns and villages. In these there are published three daily papers, ten weekly papers, and one semi-monthly paper, all well sustained. St. Joseph county is the seat of those famous institutions of learning, Notre Dame University and St. Mary's Academy, of the St. Joseph Hospital, under the management of the Sisters of the Holy Cross, and the Northern Indiana Orphans' Home.

The area of the county is about 444 square miles, with a population of 33,178, and containing 2,414 farms, averaging 100 acres each.

SCOTT COUNTY.

The surface of this county in the northwestern and central portions is rather level, but all can be easily drained. The eastern portion is agreeably undulating, with the south and southwestern portions broken by a line of hills or knobs, having an elevation of from 300 to 400 feet, from the top of which, in some sections, an extensive view of almost the whole county can be had. The soil is of that par-

ticular kind, sand and loam, peculiarly adapted to the production of wheat, oats, corn and grass, of which a large amount is exported annually. Fruits, and especially the smaller varieties, grow in perfection on the ridges or knobs. Large shipments of stock, of all the domestic animals, are made annually. The county is well watered by numerous streams, Big creek being the largest, and affording excellent water-power. Originally, all the different kinds of timber common to this section of the State, grew in profusion. The principal use to which the timber is now applied is in the manufacture of staves, of which 2,000,000 are cut and exported annually, principally used in the manufacture of oil, pork and fish barrels, or "tight" work. In addition to the staves shipped, about 75,000 barrels are manufactured annually. Of the minerals iron, stone, manganese and salt springs are found. Sand and brick clay are also found in large quantities. The area of the county is 192 square miles, with a population of 8,343. There are 1,046 farms, averaging 116 acres each.

SHELBY COUNTY.

In this county, owing to the productiveness of the soil, farming occupies the attention of almost all the citizens. The soil is the alluvium of river beds and sand, slightly mixed with clay, especially on the uplands, on account of which, (clay) they require underdraining to make them equal to the bottom land in fertility, hence tile draining is practiced to a considerably extent by the farmers. Fruit grows better on these lands than on any other, especially apples. The more tender varieties do better where sandstone exists, and where ridges protect them. All the varieties of grain, potatoes, and horses, mules, hogs, sheep and cattle, of superior grades are produced, which yield immense profits to thrifty farmers. All the common varieties of timber originally grew in the county. The forest area now comprises 32.5 per cent. of the surface of the county. The walnut trees have been gradually thinned out in clearing the ground for cultivation, and for fuel, building and other purposes, until but a small proportion remains. There is still plenty of ash, poplar and hickory, which is being utilized in the manufacture of furniture, wagons and carriages. At St. Paul, a superior quality of limestone is quarried, known as St. Paul building stone, this is extensively shipped to cities to be utilized in the erection of large buildings, twelve car loads being shipped over the Indianapolis, Cincinnati & Lafayette Railroad per week from this point. Land is worth on an average of \$34.30 per acre. The county includes 253,491 acres, and the assessed valuation of all taxables is \$13,602,707. The area of the county is about 396 square miles, with a population of 25,257. It contains 4,263 farms, averaging 60 acres each.

SPENCER COUNTY.

The county is covered with soil of various kinds, the bottom lands containing a large per cent. of vegetable matter mixed with light sand and porous clay, and is the most productive portion of the county, having the highest elements of fertility, having produced successive crops for years without the use of fertilizers. Wheat could not be raised successfully upon these lands, until within the last few years, owing to the large proportion of vegetable matter contained in the soil, but by the continuous growth of corn this has been obviated and wheat is grown with profit. Large amounts of grain, tobacco, hay and garden vegetables are annually shipped to the South by steamers and flatboats. In the southwestern portion of the county the land is low, and was for a number of years unproductive, but has been reclaimed to a great extent by drainage. In Hammond and Harrison townships grapes are cultivated successfully, and good wine is made. About 275,720 acres are cultivated, producing annually a half of a million bushels of grain, 8,000 tons of hay, 100,000 bushels of fruit, and almost 60,000 head of live stock, consuming a large amount of corn in fattening. Corn Island in this county produces more corn to the acre than any other land in the county. The county is supplied with stone, good clay for the manufacture of brick, and coal in inexhaustible quantity and of good quality. Several mines are now being worked. The water power of the county furnishes superior inducements for the location of manufacturing establishments, of which there are a great many in operation, shipping to the Southern trade by river, which furnishes cheap transportation. The want of additional railroad facilities is keenly felt, the building of which would cause the erection of many more manufacturing establishments, as an abundance of cheap fuel and plenty of timber, 45.1 per cent. of its surface, exists in the county. The area of the county is about 368 square miles, with a population of 22,122, and divided into 2,354, farms, averaging 88 acres each.

STARKE COUNTY.

As near as can be approximated, one-half the land in the county consists of wet and dry prairies, about evenly distributed, with 35.9 per cent. constituting wood land and the remainder oak openings, generally lying near the streams. The native timber is ash, oak, elm, cottonwood, hickory and a small portion of walnut. The streams of the county are the Kankakee, Tippecanoe and Yellow rivers and their tributaries, flowing in various directions, and affording considerable natural drainage; besides there are several lakes in the county, the largest (Cedar) being three miles in length and about a mile and one-half in width. The land is principally adapted to grazing, being low and level. Many head of cattle are brought to the county in summer for pasturage, and immense quantities of hay is harvested and shipped, this forming the only article of export worth mentioning. Excellent

transportation facilities, there being six railroads running through the county. Lands suitable for stock purposes, of good quality, are to be had at reasonable figures. This county is a healthy locality. The water is superior. The area of the county is 295 square miles, with only 5,105 inhabitants, this being the smallest number of any county in the State. There are 757 farms, averaging 90 acres each.

STEUBEN COUNTY.

The surface of the county rises, gradually, from the southern to the central and northern portions, with numerous hills and ridges, which assist very materially in drainage, and do not interfere with the cultivation of the soil. The county is dotted all over with lakes to the number of fifty, varying in extent from three acres to four square miles, Lake James being the largest. The waters of these lakes are pure, clear and very beautiful, abounding with all the fresh water species of the finny tribe, and affording a great amount of sport and profit to the angler, and cheap, delicious food to those living in the immediate vicinity. They vary in depth, some being very deep, while others are gradually filling up. Peat and marl are found in quantities near these lakes, the former being substituted for lime by local consumers. The marl can be utilized as a fertilizer when the lands become exhausted. The county is also drained by numerous small creeks. The land, with the exception of the lakes, is evenly divided between timber land, which is 39.7 per cent. of the land in the county, and oak openings, prairies and some marshes, which, when drained, are very fertile. The apple crop of the county is very large, and seldom fails, immense quantities being shipped annually. The land produces wheat, oats, corn, and all the staples of this section in a fair degree. Oak in great quantities, with white and black walnut, ash, beech, maple, sycamore and tamarack, exist. Manufacturing is carried on, to some extent, at Angola, the county seat. The area of the county is 302 square miles, with a population of about 14,645. It contains 1,887 farms, averaging 96 acres each.

SULLIVAN COUNTY.

The county is almost square, covering an area of 442 square miles. The boundary is very irregular, and the surface almost level, composed principally of bottom lands, prairies and barrens or oak openings, with walnut, oak, ash, pecan, poplar, hickory, beech and maple trees on the higher lands. The forest area comprises 45.7 per cent. of the county. With the exception of the barrens, the soil is well calculated to produce all the cereals and fruits, and the raising of cattle. Live stock of all the finer grades is raised and shipped, affording a great source of

revenue. The exports from the county are chiefly hogs, fat cattle, sheep, poultry and flour. Pine lumber is shipped here from Chicago, at very little cost. Of minerals, a valuable seam of coal underlies almost the entire county, the supply being seemingly inexhaustible, and large shipments are made. The population is 20,336. The county contains 2,687 farms, averaging 98 acres each.

SWITZERLAND COUNTY.

The general surface of the county varies in appearance; gradually, as it recedes from the river, we have first level land bordering on the river, then a succession of rugged but fertile hills, followed by a broken upland, until the very remote part of the county is reached, which is composed of wet flats, upon which water remains the major portion of the year. The soil on the upland flats consist of cold, wet, stiff clay, of ashen color, too shallow to allow the roots and moisture to penetrate readily, and is of no value unless drained. On the broken uplands and river hills the soil is yellow, of blue limestone formation mixed with decayed vegetation. All the common fruits, including apples, pears and peaches, and the smaller fruits and berries, grow in luxuriance here, and are remunerative to the producer. The rich river bottoms, with soil composed largely of decayed vegetation, the alluvium of the river and sand, produces large amounts of corn and hay, especially of the latter. It is estimated that from 15,000 to 25,000 bales are annually shipped to the southern markets, produced, mainly, on the upland flats of this county. Three hundred and seventy-five hay presses are in operation in the county. Grapes are extensively cultivated in the county, and vineyards are very numerous. All the common varieties of timber (30.8 per cent. of the surface of the county) found in the State grow in the county, certain kinds being peculiar to certain sections and soils. Blue limestone, well adapted to foundations and rough masonry, is found in abundance everywhere. Lime and brick are manufactured for home consumption. A superior quality of fire clay is found, with some bog iron ore. The area of the county is 221 square miles, with a population of 13,336, and divided into 1,347 farms, averaging 103 acres each.

TIPPECANOE COUNTY.

The county is one-half prairie, 23.4 per cent. timber, and the remainder bottom. The surface is generally undulating, and along the Wabash hilly. It is one of the richest and most fertile counties in the State, the soil being a rich black loam, from two to four feet deep on a stratum of clay. On some of the prairies it is light and sandy. Agriculture is in a flourishing condition, the principal products being wheat, corn and oats. Tippecanoe county is largely interested in raising fine stock—Herefords, Short Horns, Jerseys, and Holsteins. The entire county is covered by

glacial drift of sand, gravel and boulders. It is traversed from north to south by the Wabash river, flowing into the Wabash at the corner of the county is the Tippecanoe. The Wabash is navigable a greater portion of the year, and all the rivers in the county furnish good mill sites. The county is 489 square miles in area, and contains 35,966 population. The county seat, Lafayette, is one of the largest cities in the State. Genesee, bituminous and black slate is found in the northeastern portion, and carboniferous conglomerate sandstone, in the southwestern part of the county. There are 2,659 farms, averaging 115 acres each.

TIPTON COUNTY.

Tipton county lies thirty-four miles north of Indianapolis, and is easily reached from that city by means of the Wabash, St. Louis and Pacific Railroad. It has an area of about 260 square miles, and a population of upwards of 14,407. The surface is generally level. The soil is a deep, rich black loam, and sandy sub-soil of clay, and is very rich and fertile. Originally covered with a dense growth of timber, it has at the present time almost, if not quite, as large an acreage of cleared as of timbered land, the forest area being 52.3 per cent. of the county. Recognizing the fact that the highest capabilities of the soil could only be developed by a thorough system of drainage, such a system has been inaugurated, and so successful have been its operations, that there are at the present time within the county 221 public ditches, some of which are 30 feet in width, all of which have large outlets, and aggregating 1,000 miles in extent. These open ditches are supplemented by 2,400 miles of underdrains, which, together with the open ditches, are constantly being constructed. The streams are numerous, and afford outlets for the successful drainage of every foot of land in the county. The water shed in the center of the county causes the streams north of it to flow into the Wabash, and those south of it to flow into White river. There is some wet prairie land in the county, principally in the northwest part. The Round Prairie, in the eastern part, and north of the center of the county, covers about three square miles of territory.

The county has a large growth of timber, for which the loamy soil is admirably adapted. It consists of all the species of the oak, walnut, ash, beech, sugar tree, and poplar, and since the opening up of the S. E. & W. R. R., offering increased facilities for transportation, the timber has been a great source of wealth to the county. Besides improvements in the way of drainage, there are 27½ miles of free gravel roads in the county, and contracts have been let by the commissioners for the construction of many more miles during the coming season. Improvements of every character are on the boom. Brick and frame houses of modern architecture have taken the place of the pioneer's cabin, and the county is rapidly progressing in all matters pertaining to agriculture. With a soil that produces to the acre 60 bushels of corn, 25 bushels of wheat, 30 bushels of rye, 60 bushels of oats, 3 tons of grass, and fruits of all kinds in abundance, it offers inducements for investment unsurpassed by any county in the State. The county contains 1,724 farms, averaging 80 acres each.

UNION COUNTY.

A portion of the county in the west is very much broken, while the remainder is high and level, and susceptible of a high state of cultivation, the soil being uniformly good and productive. The principal stream in the county is the east fork of White Water, having a fall of about six feet to the mile, and, consequently, very swift in its course, varying in its rise and fall, sometimes dry, and at others overflowing its banks, rushing along in its course, tearing away bridges, washing out its grassy banks, and substituting in their stead gravel banks, thus necessitating the construction of expensive "breakwaters." There are, also, several smaller streams tracing their course through the county. The soil consists of clay, with a slight mixture of sand and gravel, with occasionally the surface covered with bowlders. The county was, originally, covered with all the varieties of timber common in the State, which formed a great source of revenue, but latterly, since all the valuable timber (such as walnut, poplar, ash, oak, etc.) has been very materially thinned out, the farmer is loth to sell it, preferring to retain it for his own individual use. The forest area is now 34.4 per cent. of the surface of the county. Wheat, corn, rye, oats, potatoes and hay are produced in abundance, also apples, pears, peaches and the smaller fruits, while hogs, sheep and cattle are a source of great profit. The area of the county is about 163 square miles, with a population of 7,673, and divided into 818 farms, averaging 120 acres each.

VANDERBURGH COUNTY.

The surface of the county along the river bottoms, which cover about one-fifth the entire area, is possessed of very rich soil, where immense quantities of oorn is raised and supplied to the market for exportation. Extending out from these bottoms is land peculiarly adapted to the growth of wheat. Tobacco is also raised in large quantities, and with profit to the producer. In fact, the greater portion of the county is devoted to agriculture, all of the staples being produced in abundance. Almost the entire county is rather rolling in appearance, with the slight exception of a few hills remote from the river, which are supplied with an inferior quality of soil. Timber, 38.1 per cent. of the county, of fine quality for manufacturing purposes is found, which is utilized by the large manufacturing interest of the county. Material and labor are exceedingly cheap, and the facilities for transportation, both by rail and water, are unexcelled in the State. Evansville, the county seat, is situated on the Ohio river, and is the greatest river harbor in the State, millions of dollars worth of grain, live stock, manufactured and merchantable articles being shipped annually to the Southern trade. The wholesale trade is second to none in the State, with probably the exception of Indianapolis, amounting to many millions annually. The area of the county is about 227 square miles, with a population of 42,193. There are 1,570 farms, averaging 75 acres each.

VERMILLION COUNTY.

The county is long and narrow, being from five to ten miles in width and thirty-six miles long. One-third of the entire surface was originally covered with prairie—a portion of the Grand prairie of Illinois. Bottom and terrace lands of great richness are found along the streams, covering probably one-third the entire area. Many bluffs, some rising to a height of 130 feet above the river, appear on these terraces, too steep for successful cultivation, and generally covered with forest trees. Of these forest trees, 41.3 per cent. of the county, there are large numbers of sugar tree, walnut, oak and hickory, and in the southern portion considerable beech. The soil of the county produces all of the staples common to this climate in an average degree. Horses, hogs, sheep and cattle are raised, and some shipments are made. Coal is found in four-fifths of the county, averaging four feet in thickness; there are several banks operated, and large quantities hauled to Illinois and consumed by the farmers on the Grand prairie. Iron ore is found, but not in paying quantities. Clay of a pure white color, for the manufacture of fire brick and terre cotta ware, is found. The entire county is well supplied with good building stone, being worked at several points in the county. The area of the county is 241 square miles, with about 12,025 population. There are 1,292 farms in the county, averaging 123 acres each.

VIGO COUNTY.

The surface of the county is generally level, with an agreeable alteration of prairie and woodland, about 37.2 per cent. being timber. The soil is rich and productive, underlaid in many places with valuable veins of coal and excellent building stone. The Wabash river flows through the county from north to south, many tributary streams passing into it from all parts of the county. Terre Haute, the county seat, does an extensive manufacturing business, represented by blast furnaces, nail works and a rolling mill, and possesses many natural advantages, being in the midst of the largest deposit of coal in the State, and having unsurpassed shipping facilities. Iron ore is found within fifteen miles of the city. The State Normal School, with a capacity of over 1,000 pupils, is located at Terre Haute. The area of the county is about 384 square miles, with a population of 45,658, and divided into 2,434 farms, averaging 95 acres each.

WABASH COUNTY.

The county is generally rolling, except at the mouth of streams, where it is to a greater degree level. It was originally covered with a dense growth of timber, excepting in the northern portion, near Eel river, where small prairies and oak openings are found. The forest area now comprises 44.2 per cent. of the surface

of the county. Walnut, hickory, basswood, cherry, beech, sugar tree and elm are the principal timbers. The Wabash and other streams, with their numerous tributaries, penetrate nearly every portion of the county, and supply a number of good water powers. A great proportion of the bottom land is exceedingly fertile, which, in connection with the general fertility of the soil on the upland, makes Wabash one of the productive counties in the State. The rocks belong to the Silurian age, and are valuable. Paving stones are shipped from here of superior quality. Enough lime is burned to supply home demands, with a margin for export. It is believed that a superior quality of hydraulic cement can be obtained from the stone found east of Wabash. The area of the county is 405 square miles, and has a population of 25,241 by the last census. It is divided into 2,588 farms, averaging 95 acres each.

WARREN COUNTY.

The surface of the county is generally covered with alluvian and boulder drift, having a grand area of prairies, terrace, level and bottoms, covered with a black, deep, rich soil, producing large crops of corn and grass, scarcely any manure being, required or used, an occasional crop of clover restoring the fertility of the soil. Blue grass is indigenous, and the pasturage is excellent. Oats, rye, wheat and potatoes grow in a fair degree. On account of the excellent blue grass pasturage much attention is given to the improved breeds of live stock, and immense herds of cattle may be seen grazing everywhere in passing through the county. On account of the scarcity of timber, which is enough for local use only, osage orange hedges are cultivated for fencing to a great extent. On account of the deep, porous loam, the prairie land requires underdraining; especially about the house, garden and barn should under-draining be practiced, as the health and comfort of the occupants require it. Between the bluffs and streams are found the fertile Wabash bottoms, then we have the rich, rolling prairies, covering one-half the entire surface. Of timber on the uplands, oak, beech, hickory, sugar tree, ash, walnut and poplar prevail. On the bottom lands, walnut, burr oak, cottonwood, elm and hackberry, originally, were found to prevail. Good water power is furnished by Pine and Kickapoo creeks, which drain the county, flowing into the Wabash. Clay for brick, pottery and tile making, gold, copper and galena are found in small quantities, supposed to have been washed down during the glacial period. Good building stone is found all over the county. Coal of good quality is found. The area of the county is 358 square miles, and the population 11,497. It contains 1,572 farms, averaging 135 acres each.

WARRICK COUNTY.

The county is gently rolling and fertile, and well adapted to cultivation, except a narrow belt of hills flanking the bottoms of the Ohio river. In the northern portion fruit grows in luxuriance, and the efforts of the farmer in this line are al-

ways crowned with success, but owing to the meager facilities for transportation, have found a market only to home consumers, the rest going to waste. The completion of the Evansville & Bellefontaine railroad will furnish the necessary transportation. Corn, wheat and hay are the products of the southern portion, and are shipped and marketed at points on the Ohio river. Over the whole county, and especially in the central portion, tobacco is raised in immense quantities, warehouses for its storage being located in all the small towns, the yield reaching 8,000,000 pounds, which is shipped to the Liverpool and German markets. Cheap fuel, plenty of good timber (45.5 per cent. of the surface of the county) for manufacturing purposes, and water power for all purposes exists in the county. Its mineral wealth consists chiefly in coal, of superior quality, and in great quantity at a moderate depth from the surface. The area of the county is about 390 square miles, with a population of 20,162, and divided into 2,344 farms, averaging 90 acres each.

WASHINGTON COUNTY.

The northern and southern portions are somewhat rolling, the central and eastern portions undulating, with more level lands in the western part. Its valleys are very fertile, and the whole adapted to grazing and stock raising, bluegrass growing spontaneously when the ground is sufficiently cleared. A walnut ridge extends through the county diagonally, with a rise of from 200 to 400 feet in some localities. The soil on the ridge is mixed with clay, and is best adapted to fruit culture; wheat and other cereals do not do well on this ridge. The streams are the White and Muscatatuck rivers, affording the best water facilities, good water-power, and a supply for all other purposes, besides numerous small creeks with rich valleys. The timber of the county, comprising 44.4 per cent. of its surface, consists of all the common varieties of oak, walnut, poplar, hickory, ash, and some others. The shipment of horses, cattle and mules to other markets is very heavy annually. The minerals of the county are gray and blue limestone, sandstones, fire and brick clays, and occasionally quartz is found. Many fine caves are found where limestone exists, which are beautiful in appearance. The county seat is Salem, a thrifty place of about 3,000 inhabitants. The area of the county is about 507 square miles, with a population of 18,955, and containing 2,663 farms, averaging 120 acres each.

WAYNE COUNTY.

The surface is underlaid by rocks of the Lower Silurian age. The soil is generally a rich loam, bedded in clay, with a mixture of sand with limestone beneath, and especially adapted to wheat, corn and grass, the production of which is equal to that of any county in the West. These natural advantages have been so much improved by skill and industry, that the county is a model one for other parts of

the State to imitate. The entire county is well watered and drained by two forks of the White Water river, which flow through the county from north to south. Between these streams about every four miles, the country gradually rises to a considerable height, from the top of which a delightful view of the country can be had. The corn, wheat and hog crops are immense, there being raised upwards of 1,850,000 bushels of corn, 725,000 bushels of wheat, 85,500 head of hogs and 19,500 head of cattle annually. Six different railroads traverse the county, representing 73.98 miles. Richmond, the county seat, is one of the best manufacturing towns in the State, there being about twenty extensive establishments located there, probably the most extensive being that of Gaar, Scott & Co., which uses 400,000 feet of lumber annually, and melts four tons of pig iron in a day, employing 200 hands, and produces \$400,000 annually. A greater portion of the laboring men are employed in these manufacturing establishments. The county covers an area of about 400 square miles, and contains a population of 38,613. There are 2,572 farms in the county, averaging 95 acres each.

WELLS COUNTY.

The surface, though gently undulating, is almost level. Some marshes, swales, and two small lakes are found in the county. Formerly the largest of these lakes covered four or five square miles, but it has been reduced to an area of about forty acres. The streams of the county are the Wabash, flowing diagonally through the county, entering on the northeast; the Salamonie on the South, and Rock creek in the south and west, traversing the county in the same general direction. These streams afford an abundance of natural drainage to almost the entire county. Originally the county was heavily timbered, much of which (53.3 per cent of the surface of the county) is still standing, and large quantities of lumber, staves, etc., are shipped annually. A fine quality of limestone for building purposes is found near Bluffton, on the Wabash. The manufacture of lime is carried on to a greater extent than in most any other county in the State. The county is an average one in an agricultural point of view, raising all the cereals and fruits common to this section in abundance for local consumption, with a margin for export in some instances. The area of the county is about 367 square miles, with a population of 18,442, and divided into 2,126 farms, averaging 100 acres each.

WHITE COUNTY.

The southwestern portion of the county is mostly prairie land, which is exceedingly productive. There are many oak openings, which are valuable only for grazing. Blue grass is indigenous, and is extensively harvested and exported. The prairies and barrens support large herds of cattle, which, with hay and grain, are the principal productions. The soil is also well adapted to fruit culture. The

county is drained principally by the Tippecanoe river and its tributaries. The eastern portion of the county is rolling with occasional bluffs along the river. The soil is of rich loam, underlaid by limestone. The rock formations are limestones and shales of the Devonian age, underlaid by lime rock of the Upper Silurian. Lime is burned near Bradford for local consumption, and building stone suitable for foundations and other rough work is quarried. Shafts have been sunk and considerable money spent to find coal, but to no purpose. Bog ore was quarried in the county, but owing to the expense of transporting, was found unprofitable and abandoned. The Tippecanoe river has a fall of about four feet to the mile, and furnishes an abundance of water power, which is utilized only to a limited extent, there being but three water powers on the river. The Louisville, New Albany and Chicago Railroad traverses the county from north to south, and the Pittsburg, Cincinnati and St. Louis Railroad from east to west, furnishing ample transportation for the products of the farmer. The area of the county is about 497 square miles, with a population of 13,795, and divided into 1,906 farms, averaging 115 acres each.

WHITLEY COUNTY.

A portion of the county (about one-sixteenth) consists of low, wet prairies and oak openings; particularly is this land found along the railroads traversing the county, giving the passing observer a bad opinion of the county, which is not verified by the remainder of the land, it being very fine and productive, rising even to hills and ridges in some localities. The character of the soil in all that portion, excepting that mentioned, is of the very best quality, consisting of rich loam, upon which formerly grew a heavy growth of black walnut and white oak, with some ash, sugar maple, beech, elm, and all the common varieties of timber. The forest area of the county is now about 51.7 per cent. of its surface. All the grains and other farm products are grown in profusion, as, also, large quantities of all the varieties of lumber are manufactured and exported. The revenue received from walnut lumber alone, has, in some instances, been as high as \$500 to the acre, and has been a source of much wealth to the county. The principal streams are the Eel and Blue rivers and their tributaries. There are also a number of small lakes. The area of the county is about 327 square miles, with a population of 16,941, and contains 2,079 farms, averaging 98 acres each.

SHORT HORN BREEDERS, 1883.

MAY MEETING.

The Indiana Short Horn Breeders' Association met in the rooms of the State Board of Agriculture Tuesday, May 29, 1883, at 10 o'clock A. M., with President E. S. Frazee in the chair.

On motion of W. W. Thrasher, W. J. Carter, of Westfield, Ind., was appointed to report the proceedings of the meeting.

The roll was called, which was followed by the reading of the following essay by Mr. W. L. Walker on "Short Horns for the Common Farmer:—"

SHORT HORNS FOR THE COMMON FARMER.

BY W. L. WALKER, OF RUSH COUNTY.

A few thoughts as to the general utility of Short Horns perhaps will not be out of place. The successful man of business should first consider the adaptation of the materials that he proposes to handle to his surroundings, and is there a demand for what he handles at paying prices? And the same thoughts should possess the farmer and govern his action in choosing the kind of cattle to raise. Do his surroundings indicate that he can make the most money (for that is the prime object in view with the common farmer) out of a distinctly beef breed, dairy breed, or one that possesses both of these qualities in a high degree?

It is not my intention to say aught against any improved breed of cattle, for they all have their points of excellence, but merely to say that my observation is that, for general utility to the farmer, the Short Horn stands pre-eminently above all others. We have all observed the beneficial results of crossing the Short Horn bull with the common cow, in an increase of size and points of excellence as beef animals, and it is noteworthy that our best feeders prefer the high grade or thoroughbred Short Horn, as they mature earlier and produce more high-priced beef, and for such they will pay better prices than for something that don't come up to the

standard; besides, the farmer, in keeping them as stock cattle, has got several hundred pounds heavier animals to sell than he could have had with any other cross.

I am satisfied that the milking qualities of the Short Horns have been neglected, to the detriment of the breed, and yet we have among them some very excellent milkers, and in fact I think a great many that will compare quite favorably with any of the so-called dairy breeds; and I believe that we, as breeders, can mould our herds so that we can soon excel as milk producers, and yet not detract from the beef qualities of the breed. As to the kinds of Short Horns, I would say get good ones—animals that possess individual merit and are prolific breeders. Better have one cow that will produce a calf each year than two or three that are uncertain breeders. As to pedigree, you can be as exacting as you please, but be careful that the animal possesses those qualities demanded by the rush and push of the age.

I don't think that every farmer should go to breeding fancy cattle, but I do think that if they had more good, large, decent cows they would take more pride in their stock, and consequently in their occupation.

DISCUSSION.

W. W. Thrasher. The paper is a good one, and I do not get up for the purpose of criticising it. There are a great many breeds of cattle in this country which have, their friends, who advocate their superior qualities; therefore, he might run against them, and of course, if he does he may expect to be criticised. I would like to hear a general expression of the members of this association on this subject. I do not like the plan of a few doing all the discussing of those important topics. It is not proper for me to speak more on the subject of raising Short Horn cattle here, as I have an essay that bears somewhat on that subject. After I read, will say more.

Dr. A. C. Stephenson. I understand the essay to declare that the Short Horns are a good milking breed, perhaps as good as any other, while the beef qualities are invaluable. I most heartily concur with the sentiments contained in the paper. I have no doubt but that they have been too long overlooked in this country. Breeders of Short Horns have suffered by not setting forth the good qualities of this breed of cattle as milkers. Every man in this country needs a milch cow. He goes out and buys from that breed which has the best reputation as a milker, because in his opinion it is better than any other animal. It may be the Short Horn is equal in regard to milking qualities, and it is superior in the quality of beef. We have not made this known, and consequently they don't buy the Short Horn. The Short Horn breeders will suffer so long as this is kept from the public. You loose sales, and loose them constantly. A dozen want a milk cow where there is one who wants one for beef. It is astonishing the number of cows that we see in the suburbs of this city, and they are for milking purposes. If the breed has a reputation, they will buy that kind. The Short Horn men, then, don't sell the cows to suit these purposes. If they have the animal which will fill the purpose as well, they should make it known; but we have gone on and exhibited only the beef qualities, which can not be excelled. It is the fat that gives it that juicy, tender

taste. We have gone on and exhibited this kind exclusively, to the neglect of the milking qualities. We must take this subject of milk up and exhibit it. The butter that has been made from the Short Horns is equal to any that has been made from any other breed of cattle. I would not be afraid to place it alongside with the best of butter breeds.

A little incident occurred in this agricultural society many years ago; we had great trouble in satisfying the millers as to the best grade of flour. I told the board to let me appoint a committee that will satisfy the millers. I went to the millers and appointed some of those millers as members of this committee. I then got the flour and put it on plates, and then presented it to them, and they would not decide it at all. It is just so now with the butter breeds of cattle. They say the Jersey butter is yellower, but it depends upon the manufacture. In June we generally make yellow butter. If you scald it it will be white. I was at a dairy in Mississippi some years ago in January, where they had a hundred Jersey cows. The butter was as white as tallow. I inquired of Mr. Alexander, the proprietor, why this was so, and he said it was on account of feeding cotton seed. Feed makes a difference in the color of butter. I believe it is probably true that the cow does not manufacture the butter, but only extracts it; it is of vegetable origin, and the oil passes up in the mammalary glands. If you feed your cow on corn and oil cake you will have more butter than if you do not. About 85 per cent. of the milk is water. A large cow will give more milk than a small one. If one can manufacture more food than the other, there must be size. We have this in the Short Horn. Last winter I endeavored to get a number of our milkmen to report to me the amount of milk their best cow would give in a stated time by weight. I got a few answers, but not enough to make up a full report, but I learn so far as I received reports that the best grades were Short Horns. Some gave as high as sixty pounds of milk in a day. In riding around this year I find that a large number, probably nine-tenths of the cows seen on the commons, are Short Horns or half bloods. I had a bull once; a neighbor bred some of his cows to him. A portion of his herd was bred to another bull. As the calves came I told him that I could tell the calves from my bull. He took me to his herd, and I could easily pick them out. Even a small trace of the blood is discernable. A large portion of the cows around here are Short Horns. Dairy men don't care for the breed, they buy the cow for what is in it. We must impress it on them that the Short Horn is as good a milker as others. If the animal lays on fat very rapidly it is an evidence that if the fat is there, if that fat can be transmitted to the milk, it goes to butter. Let a calf run with a cow, and see how fat it gets. It fattens on the milk, and not on the grass, and the cow demonstrates to the country the doctrine that she is a good butter cow, because she has put the butter in the calf. If she has poor calves she has poor milk. Calves will not be as fat on skim milk as they will if they suck the cow. I have had sometimes a heifer and let the calf run with her, by so doing the calf gets very fat. The cow with a fat calf is a good butter cow, and one that does not have a fat calf is not a good one. This society should make some efforts to demonstrate to the world that the Short Horns are good milkers. It is of commercial interest to those who are engaged in the rearing of Short Horn cattle. Since their introduction we are shipping a large amount of live beef to England, which amounts to a very

important item in your commercial interests. Let every one who wants a milk cow go back to the scrub and move out the Short Horns, and you destroy one very important branch of your foreign commerce. I do not want to create any disturbance or hard feelings with men who raise Jersey cattle, but in my opinion they are not worth much. My father had two cows; old Pied was a poor milker, and Lady was a good one. He kept Lady because she was a good one, and that has been done by every man in the county. If I were going to hunt a good breed I would get a good milker and raise a fine calf, something that has size and plenty of beef and good quality, heavy in the loins, on the ribs and in the thighs. Butchers soon understand that. We want good beef and plenty of it.

Mr. Kennedy, of Rush county. I have full blooded Jerseys and Holsteins. For milking qualities I consider the Duchess or Holstein the greatest milkers in the world, for quantity and quality. The Indiana Farmer, some time ago, gave a cut representing one of those cows which gave 21,000 pounds of milk in one year. The butter was sold in New York at one cent higher than creamery butter. She was imported from Holland. For beef, there is nothing that excels the Short Horn. To make good butter we must have plenty of good food. Food makes a difference in the taste of milk and butter. A man who is acquainted with bees can tell what kind of flower the honey has been made from. A wasp never makes honey. Good feeders do not always give a bountiful supply of milk, as some animals run more to flesh than milk, while others run more to milk and less to flesh. We want a breed that will combine both. The quality of milk in the Short Horn has been overlooked. In the Dutch region they have to register all animals. You can not register in the main register until she becomes a good milker. You can not register the males in this register until they are good breeders, scaling 80 points out of 100. By this means they have bred up the high milking qualities. I have two two-year old heifers. One came in in December and the other in January, and a full-blood Jersey that came in with her second calf this spring. The two-year old Holsteins give two pounds more than the Jersey. My bull, two years old, the last of March weighed 1,500 pounds, and not pashed. We can make the bull fat, but not the heifer. There is a difference between the Jersey and the Holstein. My male is not quite so smooth as some Short Horns, but equal in size to any of them. As to quality of beef I know nothing. You might as well kill a turkey as a Jersey beef when your friends come to see you. The Holstein is destined to be a dairy cow for the home demand in this country. The Jersey cream is fine, but after it is skimmed off the milk is the poorest I ever saw. The reason of this is the particles which form it are closer and rise to the top and separate from the watery substance. Cream is lighter than milk and milk is lighter than water. Take the Short Horn, you get good milk after the cream is taken off, but it is not so with the Jersey, and about the same with the Holstein. The Duchess cattle are good for dairy purposes. I have known of a cow giving 113 pounds of milk in a single day. It is like taking out the washing tub to hold it.

Dr. A. C. Stephenson. We can discuss the relative qualities of the Short Horns without noticing the others. We have to determine the different qualities of the cattle.

Thomas Nelson, of Parke county. The Doctor says if he were going to select a

good milk cow, he would go out among the scrubs. The Doctor has bred Short Horns almost all his life. I think he meant he would go back to the early grade of Short Horns.

W. W. Thrasher. I do not rise to discuss the merits of any particular breed now. Mr. Kennedy has eulogized the Short Horns. He is very well acquainted with them, more so than the Holstein cattle. The quality of the beef of the Holstein is good. You may go among the scrub, or any other breed, and if they have the quality of the Holstein they make good beef; yet there is considerable objection by some. I think I can show in my essay that we have a combination in the Short Horns that is superior to the Holstein breed. You may take any expert that understands cattle, and he can tell what will make good beef, no matter if it is the scrub. We want a juicy beef, one that is marked with fat along the sides. I have looked at them pretty thoroughly, and give the leading characteristics in the paper that I shall read sufficiently to understand what kind of cattle they are. From experience we may alter our opinion.

Hon. Lee McDaniels, of Rush county. I have tested the quality of the beef and milk of the Short Horns. I have had experience with the Jerseys and the Short Horns. We have got to have the Short Horns, without doubt, for good beef and prices. Before putting my cattle on grass, I have every steer weighed, so that I may know how much flesh they take on during the summer. The Short Horns are good milkers. Some of them I have to follow and milk when the calf is six weeks old.

W. L. Walker. As breeders, it should be the object of our lives to improve and increase our stock. That is the reason I chose the subject I wrote on. Some of you are worth thousands of dollars and have hundreds, and perhaps thousands, of acres of land, who can afford to pay high prices for Short Horns, and give them all needed attention. Some of us can not do that. We want to know what kind of cattle we can afford to raise. I am a man of moderate means. I think I have tested that matter satisfactorily to myself. I turn some of my calves with my cows. My calves were two months old. I had to follow the cows up and milk them. I had another two-year-old heifer from which I milked a gallon and a half. I thought I had better take the cow from the calf. I do not feed as a great many do. We, as breeders, should endeavor to give farmers, who own only sixty or eighty acres of land, a breed of cattle that will be profitable to them. I am of the opinion that the Short Horn cattle are the kind for them to raise.

Mr. Phillips. I have been interested in those discussions. These are facts. I can not change them, neither can you. The Short Horns are superior to any other breed of cattle, in my opinion. Directly after the war I commenced farming. I bought calves in the fall at \$10 per head. I kept them until they were three years old, having fed them some corn. I asked \$40, but could not get a buyer. Six or eight years ago I bought my first Short Horns. After that I bred some of my cows to a thoroughbred bull, and am engaged in raising that kind of cattle. As to the milk, our Short Horns always beat the Jerseys, and it was seemingly rather better. We have a neighbor that has commenced breeding with the Jerseys. He makes good yellow butter. He gets the same price as I do for butter made from the Short Horns.

Mr. Marlatt, of Wayne county. I have never been able to persuade myself that the Short Horns were not good milkers as a general rule. I have been raising Short Horns for forty years. I find that a large proportion of them are good milkers. After forty years experience with a small farm, I think one can do better by raising Short Horns than any other breed of cattle in this country, and as his capacity increases from a small farm to a large one, his profits will be greater in proportion. When we have a large farm it takes considerable to keep it up, and we must have the beef cattle then to make the money. I am of opinion that there is no class of cattle that is equal to the Short Horns.

The convention adjourned until 1:30 o'clock P. M.

AFTERNOON SESSION.

The Association met at 1:30, with President Frazee in the chair.

DISCUSSION.

Lee McDaniels. I favor the idea of consolidating this association into a breeders association instead of calling it strictly a Short Horn association. I think by doing this the result would be better.

W. W. Thrasher. I believe it would be right to change the time of holding our annual meeting. For two or three years past it has conflicted with Decoration Day, and we do not want to run against that. We eulogize the memory of the dead soldiers, and would like to be present at the decoration of their graves. I now move that we change the time so as to have it come two or three weeks earlier, so as not to conflict with it. We have all felt a little ashamed of this, because we come here to the city engaged in holding our meeting, while others go to the cemetery to do honor to those who gave up their lives for our country. The time should be changed at least one week earlier or later.

George Thomas. I would be in favor of changing back to the time the Swine Breeders' and Wool Growers' hold their meeting, in the winter. It is a time when all can get to attend the meeting.

Mr. Marlatt. I differ with the gentleman. Most of us who wish to attend these meetings can attend this season of the year better than in the winter. The weather is unpleasant and unsafe for many of us to turn out. Besides, our time is worth more at home in taking care of our stock than to trust them in the care of strangers. Many of us want a little recreation after setting our crop, and we can well afford to leave our farms for a few days and attend these meetings. I am not favorable to holding them in the winter. Most men can hire a man to leave with their crop, and attend these meetings in the summer. I am satisfied we will not get half the attendance by holding them in the winter. I have always attended these meetings, no matter what my business was at home, and missing Decoration. I think, on account of that day, we should change it in respect to our dead soldiers.

W. W. Thrasher. There is another reason different from what the gentleman has offered. There are a great many men who come to the cattle convention who care little about the hog convention, and so with the sheep men. Few men belong to all of them. These men would not want to stay here all the week to attend this convention. Another reason against holding it in the winter is, the herdsman can

not well leave his stock. He can not hire a man to fill his place. There is not one man in a hundred that will properly fill his place. Cows dropping their calves, and ewes dropping their lambs, require more or less attention. I hold that it is better for him to attend to his own business first. This, perhaps, is the most suitable time of year for holding our meeting. I regret that it has conflicted with Decoration.

Mr. Thrasher offered the following resolution, which was adopted :

Resolved, That the Constitution of this association be amended so as to make the fifth article thereof read as follows :

Art. 5. There shall be held, at some point within the State, an annual meeting to be held on the first Tuesday in June.

W. W. Thrasher then read the following essay :

WHAT IS THE BEST AND MOST PROFITABLE BREED OF CATTLE FOR FARMERS TO RAISE?

BY HON. W. W. THRASHER.

I have selected eight of the most prominent breeds now in this country, and will mention each one's quality fairly and without prejudice.

First, we will examine the native cattle of this country. They have been bred and used here nearly two hundred years, and are probably more numerous to-day in the United States than all other breeds combined. They have been bred for one purpose chiefly—that is, for milk and butter. Take into account their number and I think they excel any other race or breed for milk and butter, and are tolerably fair beef cattle.

Next we will notice the Jerseys and Alderneys. They are so near the same that one will speak for the other. As milkers and butter makers they are good; they will make more butter per gallon of milk than any of the other breeds. All the cream rises to the top, and when taken off leaves very poor milk. This is the peculiarity of the breed. There are other breeds that will, per cow, make more butter than they will, because they give more milk, and after it is skimmed it is good for table use. But the Jerseys will throw up more cream per gallon than any other breed, I think, but are very poor beef animals for the shambles.

Next in order will be the Devons. They are small, nice to breed, and pretty fair milkers. Their milk is rich and of good flavor; but they are not, I think, quite so good butter makers as the two breeds last mentioned. Their butter is of as fair quality, but not quite so much of it. They make a fair quality of beef, but are not large enough for farmers to breed for beef cattle to make it profitable.

Next we take the Holstein breed. They are good milkers, give rich milk, and

are good butter cows; and, take them individually, they will make more butter per cow, I think, than the Devons or Jerseys. They grow to be large, and their beef is of good quality. I think, however, that they have too large a bone for quantity of meat; or, in other words, too much offal for quantity of beef, which would be an objection to them as a beef animal.

We next examine the Herefords. I know not of their milk and butter qualities, but judge, by the appearance, that they are only tolerable. They make large, good looking animals, but I think the quality of beef they make is not so good as the Holstein cattle, for this reason: The Herefords are not so good handlers as are the Holstein, and judge by this of the quality of beef they make. I have, however, less experience with this breed than any mentioned, and may not have done them full justice, but think I am not much mistaken.

Next we come to the polled or Aberdeen cattle, or, as we call them, muleys. This breed grows very large. As milkers, I think they fall behind several other breeds. As a beef animal, in quantity, are equal to any other breed, but not quite so good, I think, as the Holstein. They are large, straight-backed cattle, but they have a very large bone for the meat they carry. It gives them a roughness in appearance that is not desirable in a beef animal.

Next and last we examine the Short Horns. They grow large, with smaller bone than any other large breed mentioned, and in symmetry, I think, excel all others. They are good milkers, very gentle, perhaps the best feeders of any breed mentioned; make more good beef with less offal than any, and I regard them decidedly the cattle for farmers to raise for pleasure and profit; they combine all the good qualities that could be desired.

I have only given in this paper some of the leading features of each breed examined. The details I have purposely left for you, gentlemen of the association, to discuss at your pleasure.

DISCUSSION.

W. W. Thrasher. I want it distinctly understood that I believe the native cattle of this country are the best milkers and butter animals we have got. I think the Short Horns are nearest to them, and would be their equals or superiors if bred for the same purpose. The difficulty is, we keep every Short Horn heifer without regard to their milking qualities. If we would look to this important item more in the breeding of the Short Horns, we would get up a breed that could not be excelled.

Question. Have we any native cattle in this country?

Mr. Thrasher. Yes, sir; thousands. We have them all over the country. The natives are more numerous than all other breeds put together. The rule is that a good milker will fail in flesh during her milking time. That is not true with the Short Horns. I know of some Short Horns in my county, and I have one pretty near as fat as any one you ever saw. I know that is not the general rule, but it will crop out among the Short Horns occasionally, and perhaps not in other breeds. The Short Horns are a fine breed of cattle, and when you go out on your farms to look at your herds you will be prouder of your Short Horns than any other. They have claimed at Chicago that the polled cattle, and some others, took the prize over

the Short Horns as a beef cattle, but you may take a Short Horn and put him in the hands of a good feeder, you can put on as good, if not the best, beef as any of them. I shall encourage the raising of Short Horns on your farms. You will then have something that will bring you money. The Jersey will make butter, and that is all—after the cream is taken, a pig will hardly drink the milk. I have had the Jersey, and given them a fair trial. For families living in towns and villages where cream and butter are the sole object, perhaps they are the best they could get; but for raising on a farm for beef purposes they are a failure. The Short Horns combine the qualities of all of them—butter, beef and rich milk. Doctors recommend this quality of milk for the sick.

Dr. A. C. Stephenson. The gentleman tells you that the Jersey milk, when skimmed, is not fit to use, and the other is fine eating after it is skimmed. Why is this? He says a gallon of one will make more cream than the other. If you churn the milk from both cows when it is just soured, it is likely that which yields the least butter would yield as much as the other. The Jersey butter is all taken out, and the other has not raised to the top. Butter is found in the milk in what we call capsules. These capsules, in the Jerseys, are larger and some smaller. The large ones rise first and the small ones last. The Jersey milk has more large capsules than the other. By setting the milk away for twenty-four hours the cream in the Jersey milk all rises to the top, while other breeds have not come to the top. Any woman who saves her milk for twenty-four hours, then set the pan by for a longer period, she will find an addition of cream. The reason is the capsules are smaller, and an addition of time given them has brought them to the top; so there is no doubt but that there is just as much butter in one as the other, but have not had time for the cream to rise. The rising of the cream depends upon the size of the capsules. I believe the gentleman said the Short Horns were the best beef cattle. My opinion is they are also equal to any other breed for butter. I have known of Short Horn cows giving as high as 60 to 62 pounds of milk per day.

President Frazee. Does the house accept the theory that there are native cattle in this country? Do the Holsteins come in next to the Short Horns as a beef cattle? I am of opinion they are better milkers than our native breed.

Robert Mitchell. This is a leading point. I have had some experience with the Short Horns. If you keep them up to the rack all the time you will do well. A man who is able to do that will get good returns; but if not, they will not do. That has been my observation. They will not rough it with common breeds. The Short Horn men do not put this fact forward. It is my opinion the Herefords will put them in the shade. At the fat stock show at Chicago, next fall, you will see this, for the Hereford men are trying to bring that about now. They have been preparing for it for over a year. The result will be the Herefords will come to the front, because of the perseverance of the men who have hold of them. The Herefords have been lucky in getting into the hands of the most persevering men I have ever seen. We are discussing here this subject that is of great importance. I say if the Short Horns are well taken care of they will give good returns, otherwise they will not. They must be well fed. The contest is coming to a point this fall. The Hereford men have been making an effort by using money to induce breeders to show. I do not like this. We need the Short Horns here, and the Herefords

and Poll Angus on the range. I am speaking of my own experience. I like the Short Horns, and when we give that information we don't want to mislead any one.

Mr. Haworth. I am with the President as to the position in regard to the Herefords being before the Holstein cattle. The Herefords beat the Short Horns at the fat stock show, when the Short Horns largely predominated.

S. R. Quick. It has been asserted that Short Horns require more protection than other breeds. I think they will stand the weather just as well as the scrub, and will be one-third to one-half larger.

Mr. Marlatt. In some sections of our country in the west, there are few native cattle, and there are, to take the country over, five times as many crosses. I believe, as Dr. Stevenson says: when I see a half blood I can tell it. I traveled a few years ago through several States. In different portions of Ohio, Virginia, Pennsylvania and Maryland I did not see one good animal. I saw a few nice Short Horns in Delaware. Through all that country there were a hundred native cattle to one improved. I was at the Fat Stock Show, and saw large numbers of Herefords there, and in my opinion they would not compare with the Short Horns. We must watch our own interests, for I believe the Short Horns are the best in the world for all practical purposes. If we will take care of them they will never be excelled. The Herefords would not compare with the Short Horns. I differ with Mr. Mitchell; he recommends them highly for the plains. They are hardier, and a little more active than the Short Horns, but as to keeping qualities are concerned, they are not better.

J. W. Robe. The Herefords do not compare with the Short Horns in any respect in a general appearance, and I look at them without prejudice.

Mr. Marlatt. The Iowa Association have offered to duplicate a premium at the Fat Stock Show at Chicago. I have sold two steers to go to Iowa to be fattened for that show. Iowa men have come and taken them; they were yearlings, and they paid six cents per pound, gross, for them.

Robert Mitchell. Mr Marlatt speaks of selling some to go to Iowa. He should have kept them and let Indiana had the honor of presenting those cattle. The State Board thought proper to offer a premium at the Fat Stock Show at Chicago. This seems to be a national show of beef cattle; then let our fine beef go there and be exhibited with other States. If there are any fat Short Horn cattle in the State for that show, I would like to know it. I know the Hereford men are working this matter up pretty thoroughly.

Mr. Marlatt. I do not think there is the interest manifested in Indiana that there should be in this matter, and that the wealth of the State would justify. Indiana could take care of her Short Horn interest if she would. The more interest manifested the better results may be expected.

Thomas Wilhoit, of Henry county. If we will feed our Short Horns right the Herefords will never get ahead of us.

Mr. Mitchell. I was talking with Mr. Churchman this morning, and he says there is good sale in the western ranges now; they can not supply the demand for Polled Angus and Herefords. In this country they are not equal to the Short Horns, but in the range they are ahead.

M. H. Anderson. I think I would take the Jersey before the Hereford for beef cattle. The Short Horn breeders had better bestir themselves. I noticed in the last Stock Journal some of those breeders in the West sent to Scotland, and said send us the best Polled steer; price no odds.

Mr. Churchman. The introduction of the Hereford cattle will arouse the breeders of the Short Horns up as to its beef qualities, and the introduction of the Jersey will stir us up as to the importance of milk and butter. I am a farmer, and I want to take in the interest of the farmer and help in producing in this great nation of ours a breed of cattle that combine both beef and milking qualities.

Col. Thompson, of Ky., being present, was invited to make a few remarks, and responded as follows: "I am not here for the purpose of speaking derogatory of any particular breed before these intelligent faces, but I am glad to see you center upon the grandest of breeds—the Short Horn—from a milk standard, from a natural standard, a beef standard, and from a standard that goes to make up a grand animal. I have been, gentlemen, greatly instructed by listening to the remarks of the gentlemen of this convention. There should scarcely be a trace of that original breed here of one hundred years ago. They should be high grade cattle, and graded up by the Short Horn, and through the Short Horn you get the most wonderful results, the first cross you almost make a Short Horn. The gentleman in the chair spoke of the little breeds; there are farmers here, and they should rest uneasy until they get down in Kentucky, and buy some of our high bred stock, from \$75 to \$150. As I rode up through the country here, I was surprised to see the little low grade, weighing, perhaps, 800 pounds; at two years old, weighing, perhaps, 900 to 1,000 pounds. You should be rearing cattle here that come off in July weighing 1,600, 1,700 or 1,800 pounds. Quite a number of the cattle in my county have been engaged for 6½c., and many are being shipped across the ocean. Why should the Short Horn men be asleep on their oars? Why, gentlemen, all other breeds are pushing to the front. We should be more interested in this breed of cattle. There is nothing pays a more profitable dividend than in bringing up the common stock of the country, and making high grades of them. This thing of taking cattle from here to the ranges should be stopped. You should be gathering these yourselves. These rich fields here should be stocked with the best of graded cattle. It behooves the Short Horn men of the country to exert themselves for the Fat Stock Show. I never saw a Hereford or Poll Angus in Kentucky. We are satisfied to let well enough alone, and handle superior kinds of Short Horns. I hope these gentlemen will make up their minds that the common cattle of one hundred years ago may not remain much longer, and should not be here twelve months hence."

Mr. Anderson. I have respect for Kentucky, in the presence of Mr. Thompson, or any other man will say, if he will visit any of our Eastern markets and examine the cattle, he will see just as many "knock heads" from Kentucky as any other State. I am sorry to say there are many in Indiana who do not take much interest in Short Horn cattle. We have fine bottom lands in the State. Corn and hogs are the principal products, and cattle take the second place.

W. W. Thrasher. The point has been raised that Short Horns are not a success as a grazing cattle in the West. Our Kentucky friend says they come there and

buy thousands of Short Horns and take them out of that county to the West. I am prepared to show the statistics for that. There are more Short Horns and grades going west than all others combined. I hear from Kentucky that all the bull calves are taken out of that country, and we can not get what we want. Take the United States over, there are more native cattle than all other breeds put together. To my mind there is no cattle that walks the earth that is more beautiful than the Short Horn. I am proud of them. I have been with them ever since I was twelve years old, and I do not want any other kind of cattle. All the high priced meat lies behind and above that line, from the shoulder to the loin. There is not an animal that walks the earth that can fill that bill so well as the Short Horn. The Herefords are not so long in the hind quarters, so the most valuable part is left off. The Short Horn carries more weight than any other, and if we want to raise a high priced beef we get it in that animal. The handling qualities of the Herefords are nowhere compared with the Short Horns. I consider the Holsteins have much better handling qualities than the Herefords. Whenever you put your hand on a steer that feels like a pillow he is all right; it shows the good quality of the meat. Some meat you get from the butcher's turns up like a saddle skirt, and you cannot eat it. This soft feeling, like a pillow, predominates in the Short Horns, and more in the roans and whites than in the reds. As fat an animal as I ever saw, exhibited these soft qualities. They never lose it. These hard handling animals carry their fat in lumps. We want them to fatten even all over. A hard animal to the touch does not make good beef.

Dr. A. C. Stephenson. Take a sack and fill it partly full of wool it will be soft, and fill it full it will be hard—still the wool is a soft material.

Mr. Thrasher. The comparison will not do in Short Horns.

Mr. Haworth. I have one animal which is a fine handler, but is thin in flesh; was not more so when in good flesh.

Dr. Stephenson. How do you tell a soft skin produced by disease from that of good beef qualities?

Mr. Haworth. The skin will give way, and the fatter he gets it will expand. I do not know anything about disease.

Mr. Nelson. Some steers handle much better than others. I have seen them at two years old as fine handling, at three years not so good, and at four years old as hard as a post.

W. W. Thrasher. In this country many matured animals at six years old handle just as well as they ever did. A friend of mine has a cow six years old which is soft and fine. In steers the handling qualities indicate good beef.

Mr. Thomas. I owned a cow that I had been exhibiting at fairs. Last year she lost her breeding. I fattened her and sold her to the butcher at 5½ cents. She was fat in lumps. When he killed her the fat fell on the floor, and he said it was the dearest beef he ever bought. Fifty pounds of fat were taken off the hind quarters.

W. W. Thrasher. Some kinds seem to be smooth, while others fatten in lumps. It runs in families.

Mr. Thomas read the following essay on "Short Horns and Rival Breeds:"

SHORT HORNS AND THEIR RIVALS.

BY G. W. THOMAS, OF HOMER, IND.

- I. Tendency of Americans.
- II. Milk breeds as rivals.
- III. Beef breeds as rivals.
- IV. Red tape.
- V. Obstacles—petty jealousy.

An Englishman visiting our country remarked :

"I find the people of America to be of one thought only, and easily led by something new, not waiting to see the effect. But all must try and be first to possess, hoping to be the one to realize all the benefits."

This is true, in a measure, of all people in all ages. Paul found the ruling passion of the Athenians to be a mania for telling or hearing something new. Novelty always attracts simply because it is new. This holds true among cattle breeders of America at the present time. There is a craze upon the subject of new breeds. Short Horns that have stood almost without a rival, are for the moment, nearly forgotten. Our live stock and agricultural journals abound with bovine literature, while Short Horns are scarcely mentioned. But there is nothing alarming in all this.

Novelty is having a run just now. Short Horns have made an enviable reputation, and Short Horn men are resting on their laurels. Rival breeds have a reputation to make in America. The breeders are moving heaven and earth, so to speak, to establish a reputation. I make no objection to such efforts, but rather admire their pluck. It will have a stimulating and wholesome effect upon the Short Horn interest. In the absence of rivalry we were dropping into ruts. The milking qualities of our favorite breed were being sacrificed for fat. The energy of the owners of purely milking breeds will awaken a new interest among us, which will cause our men to retrieve ground that we are losing through pure neglect. The milking qualities of Short Horns rank high in England. This new rivalry at home will cause us to give that subject more attention, which will bring our breed to the front, where they of right belong. Another *rut* into which Short Horn men are rapidly drifting is the extreme partiality for fancy pedigrees. At this point the beef qualities of Short Horns are greatly endangered. Individual merit is being sacrificed for a pedigree of fancy. Such a disposition in human society is foppish. Indeed, this generation witnesses a strong disposition among society people of America to marry broken down noblemen of Europe. That is "royalty gone to seed." That and this fancy pedigree business is very similar in some respects.

In short, this extreme fancy pedigree business is a species of *red tape*, which is fast becoming an abomination to the Short Horn interest. When we sit down breakfast we never think about *eating pedigrees*! But it is the odor of a juicy roast that tempts our appetites. And the thoughtful, practical man at once reasons from

cause to effect. How was this produced? Can the finely marbled steak be reproduced with reasonable certainty? What is the cost of production? Such questions as these are suggested. He knows that pedigrees gone to seed won't produce it. A good pedigree is a good thing. But individual merit is equally as valuable. I am glad rival beef breeds have been introduced. Their rivalry will have a salutary effect upon the Short Horn interest. It will take on new life. Breeders from necessity, if no other motive, will look more and more to the real, genuine beef qualities. With such a stimulus, the Short Horn will fear no rival. Should a better breed be introduced, it is the Short Horn breeders interest to find that out as quickly as possible.

The rivalry will have another excellent effect. That will be to drive out the petty jealousy that exists in the bosom of some Short Horn breeders. If they must carry some lurking jealousy, it will naturally turn toward our rivals, while we all can join hands in pushing the interests of our favorite breed.

DISCUSSION.

W. W. Thrasher. There is one point in the essay which should be looked after, in regards to fancy pedigrees, and losing sight of individual merit. There are some families of cattle in this, as well as the old country, sold on the pedigree, and not on individual merit, which bring large prices. I hold that it is doing a great injury to this country. For instance, the red cattle have been a damage to this country; every red bull calf was kept for a bull, whether he was any account or not. It has been so because the people were wanting red cattle. The people do not know what they want; they are running after a fancy idea and do not know what is in them. These fancy pedigrees are not best for the Short Horn men. We are liable to be led astray by depending too much on fancy pedigrees and losing sight of their individual merit. I believe the masses of the people of this country, if there was no pedigree, would be better off; they would then change to the merit and not to the pedigree. We want the best beef animals and feeders, independent of the pedigree. Experts know, but we do not. There was a time when Kentucky was running after fast horses. They came North to get mares from which to raise mules. It is just so with the cattle, they get a favorite family and they run it in the ground, and we are imitating them. I do not think this is the best plan. It is the best plan to have a good pedigree and a number one animal, but we have in a great measure to depend on our own judgment as to what is a good pedigree. Some of the old countries run after certain families which sell for from \$15,000 to \$20,000, and in some cases as high as \$40,000. I believe we can take an animal here and beat them on their own individual merits.

Col. Thompson, of Ky. I think if you had the Short Horn blood in Indiana you would have good grades here. I believe there have been great mistakes made with regard to breeding to pedigree instead of to the animal. There is, however, a liability to make a greater mistake than this by discarding first class pedigrees. Take the old Fourteenth Duke of Thorndale. Mr. Bates, of England, bred from this the best class of cattle from which sprang the Duchess and Duke bulls that have been used on this side of the water. Mr. Bates's cattle were bred to the highest standard at-

tainable on the other side of the water. You go into our State, and even in some portions of Indiana and Illinois, you see a high class of cattle, and up in the county of Boone you find the little Andrew's Bates bull as high as capable of being bred, and comes up to the picture drawn of him in the Chicago Gazette. I do not know a mean individual bull among them. While we are discussing and clamoring for individual merit and pedigree we will run off. It is necessary to keep up the standard of pedigree and breed. By careful breeding we run back to those excellent sires. This thing of gilt-edge breeding don't every time produce a good animal. A great many of the animals should have been discarded, but I believe mainly they will run back to the ancestors. We should breed in line. I would say discard the whites from all the pedigrees in the various families. You attain to good beef by careful breeding. You get this from the experience of men who bred one hundred years ago.

Dr. Stephenson. It seems that all the pedigree animals, cattle, hogs and sheep, have been bred to perfection without pedigree. The "D" hogs are not surpassed in this country, and never had a written pedigree until lately, but now, in selecting a hog we select by pedigree. Before we selected the hog and made the best in the country. Mr. Collins did the same thing in Short Horns, breeding Short Horns year after year, until 1832. The first herd book was published in 1822. Mr. Bates bought his cattle of Collins, and said he never exceeded or improved on those he bought of Mr. Collins, and there never has been an improvement on those cattle since, and they were bred to that perfection without pedigree. If we breed by pedigree we must select good animals, and if we have that we are safe. Horse men select a horse that can run, to be worth any thing; if he can not make the time he is worthless; I don't care what his pedigree is. I am of the opinion that the Short Horns are the better breed of cattle than the Herefords, yet the Herefords are a fine breed of cattle. I have not much experience with black cattle. They are a good Scotch cattle, adapted to a cold and hilly country, and suit very well for the colder parts of our country. Mr. Bates thought he could improve the Short Horn. He selected the Galoway for this purpose. They are of smaller bone than the Short Horn.

W. W. Thrasher. I must insist that some of those fine pedigrees come back on us. There is just as much difference in the human family as in stock. A good stock in men and women produces the same. The old Duke of Thorndale was a good heifer breeder. I have seen yearlings and two-year olds sold from that bull from \$40 to \$75. The old Duke of Airdrie was a fine bull. I have never seen his equal. He had fine shoulders, and in my opinion was a perfect bull all over, but generally he did not breed up to his title.

M. H. Anderson read the following essay on the "Merits of the Short Horns:"

THE MERITS OF THE SHORT HORNS.

BY M. H. ANDERSON, OF ROCKVILLE, IND.

Mr. President and Gentlemen: As it has been assigned me to prepare an address for the present occasion, and being left to select my own subject, I shall endeavor to give my views upon what I believe to be the most important interest to the Short Horn breeders; that is, how to improve or maintain the individual merit of the best breed of general purpose cattle known. I mean the Short Horns, and while saying this, I do not wish to have any controversy with breeders of other cattle, for there may be other good breeds; but what are as good for all purposes, as the Short Horns, there is no breed their equal for the three essential qualities for which cattle are bred and raised—that is, beef, milk, and butter; in a word, they are a general purpose cattle, and for this reason a breed for the general farmer, as milk and butter are two essential table comforts, not only for the farmer, but for the entire people. In fact, milk in itself is both meat and drink, and a cow that will not raise a good calf, and give a surplus with which to supply the farmer's table with milk and butter, is not the cow for him. Neither is this all, for when her days of usefulness are over for breeding, and her dairy qualities fail, he wants one that will return him a profit for preparing her for the butcher's block; and possessing, as we do, the only breed of cattle which fill this place, how essential is it, then, for us to maintain or improve their good qualities. It is to be regretted that so many have been breeding Short Horns for the sole purpose of dollars and cents. I believe fashionable pedigrees has done more to injure the good qualities of Short Horns than all other things combined, simply for the reason that breeders have been following the dictates of fashion and fancy, and allowing individual merit to take a second place, if a place at all. Bulls have been kept and placed at the head of fine herds, with nothing on earth to recommend them, but a long pedigree, and whose ancestors were no better. Talk about prepotency and like begetting like, and then breed, to such animals. Why, they are the worst animals a person can breed to, for they are sure to stamp their bad qualities on all their get. The result of such breeding I can better describe by giving the common course pursued by young breeders, and the advice given them by a certain class of veterans. Young breeders, as a general rule, are not very well posted in regard to pedigrees, but make their first purchase in the way of cows with an eye to individual merit alone, and not wishing to pay fancy prices, generally buying what is commonly called plain, common, or mixed pedigreed stock. He then wants a bull, pays a visit to some old breeder for the purpose of making his selection, and while looking at a fine lot of

imal in the background, and this is the reason why the Short Horns do not meet the requirements of the general farmers, who have been made to suffer from these avaricious cormorants. Fancy prices and high-priced pedigrees have done the work of retarding the progress and improvement in the Short Horn business of this country, and will continue to do the work of demoralization until such conventions as this shall arise in their manhood and crush out these monopolists. It is your duty, gentlemen, to set your foot on all efforts to demoralize the honorable business of Short Horn breeding for fancy prices and pedigrees alone, at the expense of real merit and value. I would not be understood as undervaluing pedigree, but I do wish to be understood as not putting it above real merit and value. Pedigree is well, but merit and value are better. I want the pedigree good, but I want the animal to fill the pedigree as to qualities and merit. If the animal does not rise above the pedigree in some points, there is no advancement made. If it falls below we know there is retrograde. Right here lies the fault of breeding in the same family. You fail to rise above the pedigree, and will be sure to fall below it by a persistent course of inbreeding. The pedigree should be good, the animal should be better, and this will obtain only when you get out of the old ruts, and prize quality above pedigree. Bad blood will tell as well as good. Breed out the bad, and thus improve the breed by additional good qualities.

What does the general farmer want with a herd of cattle like the Campbell herd of New York Mills, that was sold several years ago? The pedigree was perfect on paper. The pedigrees of the herd were sold for \$155,000. The highest priced pedigree brought \$40,000. Not one of the descendants of that famous herd, if living, would to-day bring one-fortieth part of the price of that one cow. What has become of that once noted herd? Who has been benefited by these gilt-edge pedigrees and fancy prices? They have been bred out, killed by pedigrees, and there is nothing left to the unlucky purchasers but the consolation that the old maxim brings: "That a fool and his money is soon parted." The general farmer reading of such sales becomes disgusted with the whole Short Horn business, knowing full well that there is no chance for him to come in competition with these high prices and pedigrees.

There is one other mistake breeders have made that has proved to be a serious drawback to the Short Horn business, and that is their partial failure to fill the demand for milk and butter, which partial failure has called forth inferior breeds to fill these requirements. The Short Horns, as originally bred in England, was eminently a dairy breed, and is to-day where this end is had in view. American breeders have ignored this important point in the Short Horns, scarcely looking beyond the beef producing quality. The greatest amount of beef of superior quality was the great desideratum of the American breeder. A great and increasing demand is made in this country for dairy products. Will the Short Horns fill this requirement? In answer to this question, I undertake to say they have every qualification for milk and butter when properly bred. The first premium for milk and butter was awarded to a Short Horn cow over all others at the Centennial Exposition, in 1876.

Mr. Lewis, one of the leading dairymen of Herkimer county, N. Y., says in a paper read before a dairymen's convention: "I have eleven thoroughbred Short

Horns in my dairy, and shall continue to increase the number until I have all of this kind."

Mr. L. F. Allen, former publisher of the American Herd Book, says of the milking qualities of the Short Horns: "The milking faculty may be diminished through neglect or other cause, while it may be cultivated to an unlimited extent by proper breeding and a suitable course of treatment."

But the question may be asked, how can this result be obtained? It can be done in compliance with the principle that like produces like. It can be accomplished by breeding cows of known milking qualities to bulls bred from milking stock and to no others. Let this be done and we will have cows that will have all the requirements for family or dairy purposes. The owners of Jersey herds test their milk and butter quality of their herds by the scales, which is the true test, and is a worthy example for Short Horn breeders.

But the question may occur to some, will not the breeding for milk and butter purposes be done at the expense of the beef producing qualities? This does not follow by any means. It will not do to point to the Jerseys or Alderneys as an example. They are light weights any way. They were bred in a country that required that kind, and are not adapted to a country like ours, blessed with broad pastures and a rich soil that are susceptible of a higher state of development, or rather developing a higher state of excellence than can be obtained in those diminutive breeds. The American farmers will find out to their own dismay that the introducing of these smaller breeds for the sole quality of milk and butter, and that in a small way, will be a loss to them almost irreparable. The Short Horns combine all the qualities for both beef and dairy purposes, and is susceptible of developing the highest state of excellence when bred with intelligence and judgment.

We want a breed of cattle that are our own, and especially adapted to our wants, climate and keeping. The American breeders can produce better cattle and more of them than can be found in any other country of like extent under the sun. Our broad expanse of territory, with its rich nutritious grasses springing spontaneously from the soil, make it the home of the Short Horn, in his perfection. These facts ought not to be ignored, and will not be when breeders get to see their true interests. No valid reason can be assigned for the practice of importing Short Horns from foreign countries, out of herds that have been inbred for centuries, until, like the crowned heads of those countries, decay and degeneracy mark their pathway. Why import? There is a magic in that word "imported" with some breeders. There is more magic than anything else. We must cut loose from those breeders who have such an ardent desire for anything foreign; so much so, that when they want a bull to breed to, they send to Canada or England for one for their especial use, and yet ask you to pay as much for their American progeny as the original bull cost them, and thus ask you to do a thing they will not do themselves.

DISCUSSION.

Hon. Thos. Nelson. This is what I would call a good pedigree. A pure Short Horn is a good pedigree. A Bates animal is a good pedigree. A Booth is a good pedigree. Mrs. Mott is a good pedigree. In fact, anything that is pure Short Horn is a good pedigree.

Lee McDaniels. It is not worth while for us to try to raise anything aside from the Short Horns for beef. I let my Short Horn calves have all the milk they want. I know there is no better way to raise fat calves.

Mr. Anderson. The Jerseys have their place. The cows are well adapted for a person living in the city or town. If they want a cow of this kind, weighing from 800 to a 1,000 pounds, let them have it. This country is wide. The milking qualities of the Short Horns are often injured in two different ways: One is by letting the calf suck the cow too long, to let them suck eight or ten months will injure any breed of cows; or to turn them dry as soon as the calf is dropped. I know from personal experience, to let them suck late will destroy their milking qualities. I tried holding two of the teats while the calf sucked the other two; that where we let it suck five months I universally found that on weaning the calf, they did not give one-half as much as those I milked. I permanently injured two young cows in that way. No cows are injured worse than hard ones. The scrub cattle of the country being good milkers is attributed to the fact that in the early days of this country milk was one of the principal articles of food for raising a family of children. Our fathers and grandfathers who came from Kentucky to this country, if they brought a cow it was the best old family cow they had; if there was a heifer calf saved, it was from that cow. They were breeding up from the old milk cow, breeding up the milking qualities. If the Short Horn men would do the same kind of work there would be no difficulty in bringing such things about.

Dr. Forsythe. Good milking cattle are injured by keeping too long from the bull. If you want to make a good milch cow, you must breed them young. Jersey men will breed their calves at four months old. Breed at a year old, and breed at three years old, and the one you breed at one year old is the best. If they get larger they go more to fat.

Mr. Anderson. If you want to raise a cow for milk, breed her young, and not allow the calf to suck. A cow will make a better milker by being milked by hand than to let the calf suck. We have always been in the habit of letting the calves suck, and we have sold cows to those who live in town, who take the calves away from them, and they would give more milk for them than they did for us.

Col. Thompson, of Ky. Very frequently we get our milking qualities through the bull. We may breed a poor milker, and get a good milker through the qualities of the bull. A cow may have gone to 2½ years old before breeding, or some unusual age, and does not bring forth the milk qualities so well as to breed earlier.

Mr. Nelson. The first Short Horn bull I had, I bought of Mr. Pickerell; his dam was a Seventeen cow. The milking qualities of her I never knew. I kept that bull for several years, and bred different kinds of cattle, and every heifer calf kept for milk were invariably good ones.

Col. Thompson. The subject of milk, and that of producing Short Horns, for

milk, is an important matter. It is much better to keep up the milking qualities of the Short Horns by suckling our calves. It is equally as good, or better, for the calf to suck three times a day, if we want to advance them rapidly; at least twice a day. By this method, we will keep up the flow of milk, and expand and make the milk veins larger. Men make a mistake by letting the calf run with the cow; it will not advance so fast as to let it do otherwise. For seven years I have not been breeding any other than after my herd of Short Horns, except one graded cow, that run back to my father's herd. Some cows have a tendency to run to flesh more than milk. The Mary cow, when bred back, is an exceedingly good cow of the Hamiltonian Flat Creek breed. I have frequently had to take that cow to where it was hard goose picking to keep her from fleshing with milk fever. I bought her at Tracey's sale, in 1880. I gave the calf half the milk, and milked the balance. Two months ago I undertook to wean her calf, but her bag was so flush after she had got on grass, I had to milk her again to keep her bag from becoming feverish. Some of those Jerseys give, perhaps, richer milk, but if I take this cow, and improve it, we can make it just as good. In the family of Short Horns, we have just as good milkers as any. You may take the little Jersey around this city, and stick her in the alley, and she will give you all the milk you want; but you can not do this with the Short Horn; they must have range. The Hereford is a grand breed, and this country is broad enough for all, but let us excel with the Short Horn.

Mr. Lockridge spoke briefly of the new herd book about to be published, urging the importance of each member of the association becoming interested in the work, so that correct pedigrees might be registered.

S. R. Quick. This subject of pedigree is a long-felt want. We should take stock in this, and every breeder should have every volume that is published. It is a necessity and a great pleasure to see who is breeding, and what they are breeding. I hope all the breeders in Indiana will take stock in this enterprise.

The convention then adjourned until 9 o'clock A. M. to-morrow.

INDIANAPOLIS, May 30, 1883.

The meeting was called to order at 9 o'clock A. M., President Frazee in the chair. The President read his annual address as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the Indiana Short Horn Breeders' Association:

I take it as a compliment to be called upon to preside over the deliberations of your honorable body, composed as it is of the most enterprising breeders of the State; men who have accomplished a great work in developing the milk, early maturity, and beef qualities of this noble breed of cattle. If the man who causes two blades of grass to grow where only one grew before is called a benefactor of his

race, certainly as much may be said of those who cause two pounds of steak to grow where only one grew before; or who, as a two-year-old, develops a bullock into more pounds, and more money, than was formerly done as a three-year-old, or than is done at the present time with the scrub stock of the country.

A GLANCE AT THE ORIGIN, HISTORY AND LEADING TRAITS OF SOME OF OUR BREEDS OF CATTLE.

The origin of the different breeds of cattle is involved in obscurity and tradition. Previous to the past one hundred and fifty years, but little that is reliable is known of our most popular breeds. Why it is that the historian can be minute in describing the manners and customs, the fashions and fancies of our remote ancestors, their wars and conquests, their achievements upon land and sea, the arts and sciences, as known by them, and neglect the important matters connected with agriculture seem strange, indeed. David Hume and Lord Macaulay can devote pages to the flirtations and amours of kings and courtiers, or noble ladies of questionable virtue, but pass over in silence the origin and development of our useful breeds of domestic animals. In early English history, we find no reference to horned cattle as to origin, breed and development. We presume that the Danes, Saxons and Normans, after their conquests of Great Britain, brought over from the continent cattle of an improved breed. The Short Horns, the Herefords, the Devons and the Long Horns, all have a history in Great Britain for about one hundred and fifty years. As beef cattle, there has been a rivalry between the Herefords and Short Horns, since the latter part of the last century. The common notion that this rivalry is of very recent origin is a mistaken one.

As early as 1799, when the first Smithfield Fat Stock Show was held in London, the Herefords and Short Horns had a spirited competition for the various prizes, with the results rather in favor of the Herefords. As beef breeds there has been a rivalry between the Herefords and Short Horns ever since, with the popular favor rather on the side of the Short Horns, especially as they excel the Herefords as dairy cattle. The Herefords seem to have originated in Herefordshire, one of the western counties of England, bordering on Wales. For the last hundred years they have been noted for their color, which is red, with white faces, throats and bellies. Herefordshire is noted for its rich pasture lands, and the fine quality of its beef cattle. While they are poor milkers, and objectionable for the dairy, their admirers contend that they are the most profitable for beef. In Youatt's work on cattle, published in England in 1835, he gives the results of a trial in 1828 and 1829 between a lot of Hereford and Short Horn steers, which were put on the same feed through the winter, and the same pasture in the summer, with the final results rather in favor of the Herefords. The Short Horns had gained the most pounds, but had consumed the most feed. According to "Sigma," a writer in the Live Stock Journal, Benjamin Tomkins, of Herefordshire, was the first to make any marked improvement in the Hereford cattle. About 1769, he came into possession of two valuable cows, one gray, called "Pigeon," the other red, with a spotted or mottled face, called "Mottle." From these two cows sprung one of the most noted herds of Herefords ever owned in England. In 1819, some fifty years after the

foundation of this herd was laid, after the death of Wm. Tomkins, the herd was sold at public sale, by his daughter. The average price, including bulls and calves was about \$450, which was considered a remarkable high average at the time, one cow alone bringing the fancy price of \$1,365.

Mr. John Price, born in 1776, succeeded Wm. Tomkins as a noted breeder of Herefords. In 1804, he bought some of Mr. Tomkins' cattle, and in 1811, made further additions of the same. In 1816, Wm. Price made a sale of 126 head of Herefords, and obtained the high average of about \$273, one heifer bringing \$1,260 and a bull \$1,700. The constitutional vigor of the Herefords, I suppose, has not been weakened by too close inbreeding, which probably has been the case with some of the gilt-edged families of Short Horns, upon which fancy prices have been placed, and as a natural result all the males of these high-priced families have been saved regardless of individual merit.

The Devonshire cattle had their origin in the same district, in the western part of England. They resemble the Herefords in their general make up. Though inferior in size, they are a much better dairy cattle than the Herefords. It is claimed for both Devons and Herefords that they are docile, and superior breeds for work. During the last century and first quarter of this, a large portion of the work on the farms in England was done with oxen. These breeds were both highly prized for the yoke; the Devons on account of the quickness of their step, and the good time they made on the public highway when drawing the loaded cart; the Herefords for their superior size and ability to draw greater loads. Of late years horses have largely taken the place of oxen for farm work. Consequently, the ox is no longer reared as an animal for draft, and the tillage of the soil, but as a machine to convert the crops and grasses into human food. The animal now that comes to maturity in the shortest time, or that can be prepared for the butcher at any age, making the most high priced beef in proportion to the carcass, is considered the most valuable.

Robert Bakewell, born in Leicestershire, England, about 1725, gained a world-wide fame by his improvement of the Leicester or Bakewell sheep. He attempted the same on cattle, but unfortunately selected the Long Horns for his experiments. Had he selected the Short Horns, I have no doubt he might have added greatly to his fame, as well as to his usefulness as a breeder. Bakewell's principles of breeding were founded on sound philosophy and good common sense. He urged that like would produce like; therefore selected the best individuals of any breed to propagate the species, regardless of cost.

Remedy defects by corresponding good qualities, that if an animal was defective around the heart, cross the one that was well developed there. That if an animal did not mature early, couple it with one that did. The improvement that he made in sheep, and the Long Horn cattle, was astonishing. He believed that all was in the breed; that beauty of form, the quality of the flesh, the propensity to fatten and early maturity of the offspring, was all inherited from the parents.

The northeastern part of England, along the river Tees, embracing the counties of York, Durham and Northumberland, seems to have been the original home of the Short Horn cattle. The color was red, white or a mingling of these two colors—red and white, or roan. The earliest named animal on record is "Studley Bull,"

(626) of the English Herd Book. His color was red and white. Bred by Mr. Shorter, of Chilton. He was calved in 1737.

The earliest cow on record is "Stripes," calved in 1739, and sired by "Studley Bull."

The next most noted bull on record is James Brown's red bull (97), calved between 1765 and 1770. Many noted animals trace their origin to this bull.

The first noted breeders of Short Horns, who made it a grand success, were Robert and Charles Colling. These men were the sons of a prominent farmer living in the Valley of the Tees, who himself was a breeder, and an admirer of Short Horn cattle. With these brothers commenced the first reliable connected history of this now world renowned breed of cattle. They were in business from 1780 to 1820, when they retired from active life, and put their Short Horns up at public sale, the fruits of forty years as breeders. The prices obtained were considered fabulous at the time, and astonished even the breeders of fine cattle, some of their cows and heifers bringing over two thousand dollars. Their bull, "Comet," sold for five thousand dollars.

After the Collings came the Booths. The elder, Thomas Booth, was acquainted with the Collings, and partly cotemporary with them. He was a breeder from 1790 to 1814. He was succeeded by his sons, Richard and John Booth, who became successful breeders of Short Horns. The Booth cattle, to the present day, are considered the best show cattle in the world. The Booth cattle also sold for enormous prices, Mr. Booth being offered seven thousand dollars for his show cow, "Queen of the May."

Next came the renowned Thomas Bates, contemporary with and succeeding the Collings and Booths. He was actively and successively engaged in breeding and rearing Short Horns from 1800 to the time of his death in 1849. It was he who gained a world wide fame for rearing the Dukes and Duchesses. At the New York Mill sale, one animal alone sold for forty thousand dollars, and several sold for over twenty thousand.

The introduction of Short Horn cattle into America, began in the latter part of the last century, by a Mr. Miller, of Virginia, and a Mr. Gough, who made an importation into Baltimore about 1790. A Mr. Patton, of Virginia, moved to Clark county, Kentucky, shortly after and took some of the descendants of these cattle with him. In 1803, Mr. Patton and others brought other descendants of the Miller and Gough cattle to Kentucky. From them descended what was afterwards called the Patton stock, called after the man who first brought them from Virginia to Kentucky.

The first importation of Short Horn cattle to America, that has figured largely in the American Short Horn Herd Book, was that of Col. Lewis Sanders, of Kentucky, known and designated as the importation of 1817; commonly called Seventeens, partly on account, I suppose, that some Long Horns were brought over with them and mixed with them; and partly, probably, owing to prejudice. The Seventeens do not sell as high as the descendants of later importations. As a general rule they are large, broad-backed and fleshy, good in the show-ring, and some of them excellent milkers. To this importation belongs the noted bulls, San Maraten and Tecumseh, and the Durham cow and Mrs. Mott.

Our own State has done but little in the way of importing, our breeders preferring to purchase them in this country.

Dr. A. C. Stephenson, of Greencastle, in 1853, imported two bulls and four cows, which proved to be a valuable acquisition to that part of the State.

Gen. Sol. Meredith and his son, H. C. Meredith, have owned quite a number of imported animals, though they never imported any direct. No men who have ever lived in the State have done more to advance the Short Horn interests of Indiana. I believe they paid \$12,000 for their bull, the twentieth Duke, and after he had been used in their herd and was ready for disposal, he brought \$8,000 at the Chicago sale. I suppose, however, that imported Forest Napier, for which they paid \$2,800, a pure Booth, was the most valuable sire that ever stood at the head of their herd, as well as their best show animal.

In our own county, W. W. Thrasher and Garrett Wikoff, were among the first to improve the cattle of Rush county, by purchases of Wesley Warmock, of Harrison county, Kentucky, and of other Kentucky breeders, also of the Shakers, of Ohio. Mr. Thrasher's bulls, John Marten and Leonard, crossed on the common cows of the country, made such a marked improvement as to give an impetus to improving the cattle of the country.

Isaac Louder brought some fine Short Horns from Kentucky to the northern part of the county, which proved a valuable acquisition to the cattle in that part of the county. His bull, President, was a perfect beauty; though small of size, was a fine show animal, and a remarkably good breeder. Some forty years ago Mr. Hildrith purchased some in Bourbon county, Kentucky, which greatly improved the stock of Noble township.

A number of years ago Mr. John McGee, Absalom's father, brought out a bull from Kentucky, which greatly improved the stock in his neighborhood.

James Wilson made some valuable purchases in Kentucky, which have greatly added to the improvement of the cattle of Rush county. At one time he owned a fine show herd which was a credit to the county. Quite a number of enterprising farmers of Rush county, I would like to refer to, did my space admit, who have contributed to the improvement of the cattle in this county; so that now the entire county can boast of its superior cattle. I have necessarily, for want of space, omitted reference to Polled Angus, Holsteins and Jerseys.

In conclusion, would say that if butter was my object, I would breed Jerseys; if beef alone, or beef and dairy combined were my object, I would breed Short Horns.

DISCUSSION.

Dr. A. C. Stephenson. I am pleased with the address. It seems that our organization has lost sight of the first raiser of Short Horn cattle. I am sorry our President has not been able to give us a full account of the early introduction of Short Horn cattle. I allude to John Owens, of Monroe county. I came here in 1826; Mr. Owens had a large herd of Short Horn cattle and Merino sheep then. We seem to have lost sight of this at our wool growers' and cattle conventions. I was at his house a few years after this, and he must have had then some fifty or sixty head of Short Horn cattle, and I never have seen any since that were better.

They were from the importation of 1817. I hope we will take account of Mr. Owens' cattle. He was the first breeder, and kept up the blood as long as he lived. He purchased a fine bull in Kentucky, but I am not able to give the history of it.

On motion of Mr. Nelson, Messrs. Lockridge, Anderson and Robe were appointed a committee to draft appropriate resolutions in regard to the death of Henry C. Meredith.

Mr. Wilhoit read the following essay on "How to Make Short Horns Pay."

HOW TO MAKE SHORT HORNS PAY.

BY THOMAS WILHOIT, OF HENRY COUNTY.

In the first place, you must have a good animal to begin with. You want a fine bone, a broad, level back, full in the ceps, good around the heart, fine front, good mellow hide. Then you have one with a good constitution; one that will pay you to feed. You want it backed up with a good pedigree, (not particular about gilt-edge.) I mean a good family of cattle—well-bred, fleshy cattle. Then take your calves and commence young to feed well. Never let them go hungry, and feed right along, and not breed them to have calves until they are three years old, at least; better be older. Right here, I want to say to the Indiana breeders, is where some fail. They breed their heifers too young. It cuts the growth of the cow, and they never get them up in flesh, as they should be. We must keep up size, and in order to do this, we must keep up flesh. When the cow has the first calf, take good care of her until she has the second calf. Then she has well matured, and the flesh has become solid; then you can keep her up in good flesh, without any extra feed. Some breeders say they don't want to spoil their breeding cattle with too much flesh. That is a mistake; fat has nothing to do with breeding. A fat animal will breed just as well as a poor one. I have tested that to my satisfaction. I have been showing cattle for thirty years, and my show cattle breed as well as others that are left on grass. There is more clear money in ten head of good Short Horns, treated right, than twenty-five head half fed. Don't be afraid of getting your cows too fat to breed. Why can not we compete in the show ring with Illinois, Kentucky, and other States? The reason is they out-feed us. We have as good cattle as they have, and as good blood. Show me a man that is a successful breeder of Short Horns, and I will show you a good feeder. I think ground feed is best, and would not recommend grain alone. I always mix the feed; cut hay or straw. Ship stuff or bran is good to mix with the meal, and it will pay to feed oil-cake meal, if fed properly. If not fed too much at a time, it is all right. Cattle do better to change the feed, as they get tired of one kind of feed; change it for a few times. I have been breeding Short Horns for thirty-five years, and this is my experience; the more pains and care I take of them, the better it pays me.

DISCUSSION.

W. W. Thrasher. The paper, in the main, I like; but there are some features to which I take exceptions. I am opposed to breeding heifers at three years old. It has been urged upon this Society by most experienced men from the first of the organization, up to now, that we are losing sight of the milking qualities of the Short Horns. I am satisfied that a heifer bred at two years old will make a better milker than one at three years old. If we keep up and increase the milking qualities, we must pay some attention to the breeding of them. We frequently turn the calves with the cows; this will ruin any cow from being a good milch cow. The calf, until considerable age, can not take all the milk, and they adopt themselves to the amount that it wants, and will finally give only that much. To secure the milking qualities of the Short Horns, they have to be bred to that point, and keep the calves from the cows, while it is beneficial for the calf not to run with the mother. A calf may be learned to eat at quite an early age.

Mr. Haworth. My experience is not extensive in regard to breeding. I have always bred my heifers young, and I have fine milkers. I have one cow that did not stand until of considerable age, and she is the poorest milker I have, but I lay it in part to her being kept a little too fat. I am of the opinion that by feeding heifers too plentifully we make them run to beef instead of developing the milking qualities. I have generally bred my heifers to have calves at two years old.

S. R. Quick. I have been breeding for nearly twenty-three years. I do not think any animal should go hungry. I have adopted the rule of breeding a little younger than Mr. Wilhoit, say from twenty months to two years old, and I have no trouble in having good milkers. I breed nothing but Short Horns. Have had no trouble on account of being fat; I think it has nothing to do with it. The more you feed a cow the more milk you will get. The milking has more to do with it than the feeding. I never let my calves run with the cow after a week old; when very young let them suck three times a day. Keeping an animal has nothing to do with the milking qualities. Dairymen will, I think, coincide with me in that respect. We should always milk clean. If we do this we will have little or no trouble.

Colonel Dodge, of the United States Agricultural Bureau, being present, was invited to make a few remarks, and responded as follows:

GENTLEMEN—I did not know your Society was in session until this morning. I am glad to be with you and hear your discussions. There are some points which, if I had time, I would be glad to say something about. The subject in general is one all of you recognize as being one of the most important branches of agriculture in the West. It is no doubt becoming of still greater importance. The idea has always been that the stock interest would become more prominent in the central part of the country; that its growth and development increases the value of lands; it is so in England and other countries. The price of meat has slowly advanced in all parts of the civilized world for the past forty or fifty years.

Holding the position that I do, I have had an opportunity of ascertaining the relative value of lands in connection with the stock and grain industries of our country. Taking Illinois, Indiana, and Iowa, I find in every instance, in taking a

class of counties where corn and cattle predominate, that those counties were more thriving, and with larger results and higher prices than the wheat portion of the county. It was just as I expected. The result is inevitable. Where the product of the soil is used on the soil as a fertilizer, the fertility is kept up. Where it is carried off, as in wheat production, there is a tendency for deterioration. There seems to be a great deal of loss in the winter in feeding. While we feed a large amount of fodder and hay, we get little results, as compared in the fall as to weight in flesh. We use up this amount of feed to keep the animal alive. We feed for fuel rather than fat. To bring beef to maturity, there must be continual growth, and no stoppage. I would like to know your opinion as to the progress in that respect, and the profitableness of feeding in the winter.

Mr. Nelson. A gentleman in my neighborhood had sixteen head of cattle. They averaged a shade over 1,400 pounds in the fall, and worth five cents in November. He fed them well during the winter with grain, millet, and hay, and fed in the rough, and when he sold them in the spring they averaged 1,700 pounds, and got six cents.

S. R. Quick. The majority of people do not feed well enough in the winter. In raising a steer to be a three year old, they lose at least one year. If fed well from the time of its birth, it will be as large in the fall when two years old, as at three the way they are generally wintered. I never stop feeding until they are ready for the butcher's block.

Mr. Thrasher. The practice in this country, by farmers, is to sell a great deal of their corn. Men farm land and sell all the grain off, both wheat and corn. It occurs to me that the best results would be obtained by feeding all the grain he can raise, and buy the surplus from his neighbors, and feed on the farm. A man can keep up his farm much better where he feeds his grain on it. As to feeding of stock, I am of the opinion as indicated by the gentleman who just spoke, that it should be kept in good growing condition until ready for market. Have it ready for market at any age, either hogs or cattle. We have bred our cattle to such a point that we can fatten them at any age, and I am not sure but that there is more profit at two and two and one-half years than any other age. You can put more on him at less expense than any other age. Twenty-five or thirty years ago we had to keep them longer before they matured; but we have got a breed now that we can fatten right from the teat. Then a man is ready for the highest market.

Dr. Martin, of Asbury University, read the following essay on "Education of Farmers:—"

EDUCATION FOR FARMERS.

BY DR. A. MARTIN, OF ASBURY UNIVERSITY.

Mr. President and Gentlemen of the Short Horn Breeders' Association :

On the 3d instant I had the honor of receiving a postal from your Secretary, T. W. W. Sunman, Esq., advising me that I had been assigned to prepare and read an essay on some subject, not designated, before your honorable body at its present session. I need scarcely assure you that to do this would have been to me a source of more than usual pleasure, and especially had I received more timely notice of my appointment. I allude to the want of this, and to the pressure of duties always exacting (and in the present crisis of Asbury University more than ordinarily so), as a reason for appearing before you with a paper somewhat other than I would like to furnish. I may be allowed to say I was born a farmer's son and, until I had nearly reached my majority, was brought up on a farm. Indeed, there are few things which a farmer's boy is usually required to do in which I have not had a hand, and if my highest worldly wishes could be fulfilled my days would end, as they began, on a farm. Reference is made to these things only to show that my sympathies are naturally, and I may say strongly, with those that till the soil. But not how to get the largest crops of grain nor yet the finest herds of stock should be the chief ambition or the highest aim of those engaged in your honorable occupation. A generation of brave, intelligent and noble sons; of lovely, pure, accomplished daughters, is the noblest product of our farms and the brightest jewels of our homes. And so, when I inquire how can farmers best vindicate their right to be classed among the honored and honorable of the earth? I propose a question that has to myself, and should have to all, a most intimate and vital signification. It is not to be denied that men too often think of farming as mere slavish drudgery. True, Washington, at Mt. Vernon, Livingston, at Clermont, Clay, at Ashland, Jackson, at the Hermitage, Webster, at Mansfield, and many other such between these and old Cincinnatus, or our still older father, Adam, might be referred to as reflecting dignity upon the pursuits of agriculture; but still, the field, the garden and the dairy; the herd, the orchard, the barn and the poultry yards have been, and by many still are, regarded as among the less desirable, less profitable and pleasant of human occupations. The question is: How can farming in all its departments, be relieved of this odium, and secure and hold its rightful rank among the most attractive, prosperous and delightful of pursuits?

The most direct and most comprehensive answer that can be made to this inquiry is that our sons and daughters must be educated. Our occupation must be elevated to the rank of a science and an art by combining with it, and with its results, more literature, more science, more general intelligence. That this is the de-

sign and will be the result of your own and of similar organizations is not for a moment to be questioned. That there are many who, to their honor, appreciate and strive in every laudable way to meet this want, is equally true. True it is, however, that the great mass of our farmers are woefully wanting in proper interest in many things that tend to elevate and advance the varied interests of agriculture and those engaged in it. I take it that among other matters of importance connected with your annual meeting, "line upon line, precept upon precept" in regard to this subject is in order. Is there need of this? Aside from matters of general enlightenment, how many of those engaged in agriculture can satisfactorily answer, what is the food of plants, and what the best for different kinds of plants? How do plants grow? What implements are best adapted for the tillage of the soil, and of different kinds of soil? Is it better to apply manures broadcast, to cover them in to the full depth of a first plowing, to bury them about half such depth, or only work them in with a harrow, cultivator or brush, as near the surface as possible, and yet under? What are the arguments for and against each of these methods, with different kinds of manure, on different soils and for different crops? How can we obviate soil-exhaustion, and what is the best rotation of crops? What constitutes disease in vegetation, and how can those most prevalent in different forms of vegetation be best avoided or corrected? What are the best varieties of roots and of grains, and of grapes, and of the larger and smaller fruits for the southern, central and northern parts of Indiana?

In what does thorough drainage and the proper preparation of the soil in clay, sand, or loam consist? and how is it best secured, when either of the above qualities largely predominate? What interest should farmers take in climatic and meteorological agencies? What importance should we attach to the study of forestry and of entomology? How can consumers and producers be brought more nearly face to face, and thus the one get more uniform and better prices, and the other cheaper bargains and better goods?

You know how any one, even slightly acquainted with farming, could easily continue these interrogatories? To come nearer home to the range of your own immediate organization, suppose I should ask—not any of you gentlemen, who could readily enough reply—but the average Indiana farmer, or his boys, what breed of cattle is best adopted to your part of the State for beef, milk, and work? Which is best for each of these? How early should a valuable bull be put to service? What is the best treatment for a calf during the first year? What rules should guide in selecting and breeding stock? What is the best way of feeding cattle in winter? How should milch cows be fed, in view of the largest profit? What are the best rules for selecting cows for dairy purposes? How long should a cow go dry before calving? I venture to say, if you had printed 1,000 circulars of such questions, and sent them out at random to ordinary farmers through the State, 90 per cent. of them would never return, and of the 10 per cent. remaining, half would have exceedingly unsatisfactory and defective answers.

Or, leaving the wider fields of cattle husbandry, how many among our agriculturists, who mainly deal in Short Horns have an intelligent acquaintance with the history and distinctive peculiarities of the Durham stock, and how it has come to be what it is?

The breed had its origin in Holland, but has long been known in this country and in England for properties widely different from those which once constituted its chief characteristics and value. Its special peculiarity for ages was a large and scraggy frame, and an unusual abundance and continuance of milk. But in the hands of intelligent and careful breeders the whole strain of the stock has been nearly changed, and now a magnificent figure, the tendency to fatten easily, and the production at an early age of the choicest and most beautifully grained beef give them so great a value that they are likely to supercede, or, at least, greatly modify, every other breed in our grazing districts. It is only now and then that a farmer is surprised by finding in his herd an exceptional cow, that seems to revert to the original type, and is puzzled to know how one happens to give so much milk and so persistently refuses to go dry or to fatten. Whether it is well for us to seek exclusively for quick and large profits in the shambles, or whether it might not be well to try, and, if possible, combine in a greater degree the production of first-class beef, milk, and tallow, in the same breed, is one of the most important questions worthy of consideration by such an organization as your own body.

But I set out to ask, and in some measure answer, the inquiry, how the farmer may be made more prosperous and farm life more attractive? In answer to those who might think such questions not needed, or even impertinent, I have briefly tried to show the contrary. I do this while gladly recognizing the very many honorable and noble exceptions which I have been happy to meet in every part of the commonwealth. I have done it in no spirit of fault-finding, except with those who, insatiate with the greed of gain, rob their off-spring of that which is their best fortune and inalienable right, and which is now in Indiana within the reach of all—a good education. I bring no untried nostrum, no quack prescription, for the elevation and improvement of these fundamental, and, of all others, grandest and most valuable interests of the people. It is utterly false and slanderous to say that doctors, lawyers, preachers and others should be liberally educated—observe I emphasize this word *liberally*—and that farmers should not, or at least need not be. None are better able to secure these advantages for their children and successors on the farm. None should be more anxious to do so. In vain do they complain that the city is more attractive for young people than the country, and that their sons would prefer to be in the store, or the bank, or in some office, rather than till the farm. Let them make their homes attractive—bright within and without with the lights of literature and science, of culture and of art. Especially let them see to it that neighborhood schools are furnished with the best appliances of education, and with the best teachers, and that their sons and daughters have not only the advantage of these, but also, to the fullest extent of their ability, the additional training and instruction provided in our more advanced and best institutions. They have the means to do this; and better, far better, to expend those means in the education of their children than to dwarf their minds in trying to accumulate a fortune that very possibly may only ruin them. They have abundant time to accomplish this as well. What means these labor-saving, and time-saving, and expense-saving discoveries in science, and inventions in art, and the varied application of these to improved machinery, except to redeem men from the pressure and necessity of constant, physical toil, and furnish them an opportunity for the

cultivation of their nobler part? Could we only learn the right use of our God-given leisure there would be no complaint of lack of time for study and for thorough education.

To be more specific, this education should commence in our common schools, and besides the branches usually taught should embrace a good text-book on matters of special interest to the farmer. The sciences of cookery and agriculture might as easily be taught as are English grammar and arithmetic. A knowledge of geology, botany, and even the more recondite parts of agricultural chemistry, as well as the general principles of comparative anatomy and physiology, are as easily acquired as is the extraction of cube root, or the proper analysis of a sentence of English composition. And why should farmers' sons and daughters be denied the graces of a college education? To whom is a knowledge of mathematics and languages, the physical and natural, the moral and political sciences of more value than to farmers? Whose faculties of heart, of mind, and of body, are more worthy of being drawn out, strengthened and rightly directed than theirs? This is secured in other countries, and may be in this. In my native land you can often find horny-handed men down deep in the bowels of the earth, and begrimed with the soot and dust of coal mines, who could lecture on rocks and minerals in college halls, and who know the last and best works that have been written on paleontology, geology, and kindred sciences. Many a man there holds his plow who can read his Greek New Testament, or quote from Virgil's *Georgics*, or survey a field by strict triangulation, and not regard it as anything at all remarkable. And so in the avenues of commerce, trade and manufactures.

The same may, to a large extent, be said of Germany. It is vastly encouraging that more and more attention is being paid to this matter among ourselves—that men are being educated—thoroughly educated, not because they are to be lawyers, or doctors, or preachers, or politicians, or farmers, or mechanics, or merchants, or men of affairs, but because they are men—created in the image of God, and destined to share God's immortality. In the halls of our best colleges are found scores of students—and some of them the very brightest and best students—who come from, and expect to return to the workshop and the farm. In our own State of Indiana, the largest of its manufacturing interests, and the largest of its kind in the United States, is superintended and carried on by a college graduate, and from the halls of the same institution, when the county in which it is located sought the best man to represent the people in the Legislature, they made no mistake when they chose one who was at once a college graduate and a successful farmer and extensive stock raiser. And since Jason S. Lockridge and Newland T. DePauw are but samples of others who have gone from the same institution not less equipped for their life work in the industrial pursuits, not less able to "speak with the enemy in the gate," but are the better qualified for both one and the other, because of time and money spent in classic halls.

Mr. President and gentlemen, I wish most earnestly to press this point. That a liberal education is only to be sought in view of entering on the so-called learned professions, that it spoils a man for business or the active and industrial pursuits of life, I repeat, is a vile slander. The want of it may do so, the mere name and hypocritical pretence to it may do so, but the real thing itself is to the artizan and

the farmer, to the mechanic and the shop-keeper a boon of inestimable value. The man who lays the tile to drain your field, or carries the hod to build your house, does these things all the better in proportion as the incrustation of ignorance has been washed off his own soul, and the horizon of his mind has been widened, elevated and cleared.

In conclusion, do not mistake my meaning of this word education. It is something more and better than the mere technics of an art, a trade or occupation. Our so-called farmers' colleges and schools of handicraft instruction that make such pretentious claims to the exclusive patronage of farmers and of artisans, must greatly widen their *curricula* of study and instruction before they attract in considerable numbers, or furnish for either farmers or mechanics advantages that at all correspond to those provided in our regular and best colleges. Not training of the hand alone, but also the head, the heart, the body, the whole man, in view of his entirety and eternity, constitutes education. Oh! it irks me to hear men speak as if the ability to look out on God's great universe through one little slit or the small gimlet hole of a single line of work or study through all one's days, constituted an education. Man is not a mere money-making animal, or a mere eating machine. To join house to house, and farm to farm, is not his end and highest aim. His proper education contemplates the due development of all his tastes and all his power. When this is done by such a thorough course of study and instruction as the wisdom of the ages has shown to be, and the experience of the best teachers has proved to be most conducive to this, and then bring these well-developed powers to bear with all their weight and worth on that for which, thus trained, personal tastes and aptitudes, or Divine Providence may indicate to be the best for personal and relative good, this should be our aim.

Let me not be understood as advocating the education of farmers' sons alone. The same may be in substance said, and indeed much more so, in favor of the education of farmers' daughters. The attractions of the home, and all around it, will more and more become what they should be, when this truth is practically recognized. Not less soil but more soul culture is what I plead for, and the latter in order to the better doing of the former. Not large, expensive houses; not foolish girls, bedizened with the tinsel and varnish of some female seminary; not loutish, ignorant boys, perhaps less cared for by the father than some valued horse or ox, but neat, and snug, and convenient homes, filled with bright, intelligent and happy sons and daughters, furnished with books and music and other evidences of the highest culture, smoothing the wrinkles from the brow of age and care, softening the rough edge of temper—homes that will nurture a generation of those whose noble deeds and pure and honorable lives, will prove them to be the surest palladium of every valued and valuable interest of our country. These are what we need and what, in greater and still greater measure, I respectfully submit, we should seek to have in order to realize the ends aimed at in this paper.

DISCUSSION.

W. W. Thrasher. It is a good paper. There is one point I wish to urge on the farming community. If we would take as much pains with our children as we do with our stock, we would have better men and women in the country than we do. There is often too great a mistake in this. We want more good men and women in this country. We have the children, and we should cultivate them so as to be an honor to the men and women of this country. Every farmer should take proper care with his stock, which is right, and if we would take pains to keep scalawags from among our children, we would have better children. Not unfrequently the morals of our children are injured by having hired help that is not suitable, but is detrimental to the cultivation of our childrens' minds.

Messrs. Thrasher, Quick and Nelson were appointed to present names for officers.

Dr. A. C. Stevenson. We have lost sight, perhaps, of a profitable inquiry of Mr. Dodge as to the profit of feeding cattle the old sloven way. A change in the way of feeding has been growing for four or five years in Putnam county. Mr. Lockridge has built an extensive barn, and is feeding in that. He had been feeding for several years in the ordinary way by hauling out in the field. The hogs would be turned in the next day and get what corn was left; this was the practice many years ago. Mr. Lockridge's barn was so well suited for indoor feeding that he has built another barn and is feeding several hundred cattle indoors. William Bridges, since he saw Mr. Lockridge's barn, has built him one similar, so barn feeding is increasing. It is very plain to every one, the great changes that are taking place in our country; one thing, land is advancing in price all the time, and cattle will also advance. With land worth from \$50 to \$75 per acre, and corn 50 cents per bushel, I could not make a paying interest. Then there are other changes taking place. We used to drive our cattle to market; now we have got railroad facilities, and we ship all our cattle alive. But the time will come when we will take no live cattle East, as we have plenty of ice, and they will be slaughtered here altogether, and then shipped. Another thing, cattle are being raised in large numbers, not only in Texas, but in other portions of the country, and costing little or nothing to raise them. The question is, can we compete with those cattle raised on those cheap lands, or must we adopt a cheaper plan of feeding. In looking over the census report, I notice the potato crop is far better, even than cotton, wheat, or corn. If this is the fact, and I have no doubt but that it is, we can not afford to raise cattle on 50-cent corn, when we can raise double that in potatoes. The main object in raising cattle, is for milk and beef. This Association should look to that matter, and determine, if it is possible, in meeting and competing with those cattle that are raised in the West. This question should be investigated fully, for we have got to meet it.

Mr. Lockridge, of the Committee on Resolutions, respecting the death of Hon. Henry C. Meredith, made the following report:

Since our last annual meeting, we have lost one of our prominent members by death—Hon. Henry C. Meredith, of Wayne county. The Short Horn interests of our State sustained a great loss in his death. He was an ardent admirer of this

noble breed of cattle. He spared neither pains nor expense in breeding and rearing the best. In connection with his father, the late Gen. Meredith, he became quite successful as an exhibiter at the leading fairs of the State. Henry C. Meredith was a credit to our association. Honorable and high minded in his business transactions, a gentleman of refinement and culture. In my associations with him I never heard him utter a word which might not be repeated in the presence of ladies. By an inscrutable Providence he has been called hence, ere his sun was in its zenith; in the prime and vigor of his manhood, while his step was yet elastic, with no grey hairs upon his brow. The last representative of a noble family, his two elder brothers having offered up their lives when their country called, during the dark days of the rebellion.

Mr. Lockridge. It was my pleasure in life to know Mr. Meredith. I ever found him to be one of the most pleasant and affable gentlemen I ever knew, with strong qualities of head and heart, but energetic to a fault. I can emphasize the words of the resolution that "his death is a great loss to this Association." He was President of the State Board of Agriculture at the time. Life was promising and beautiful, though unexpectedly he was called away. I saw him three weeks before, at Chicago, hale and hearty, and three weeks after that he was dead. His death is a great loss to the agricultural interests of the State of Indiana.

Mr. Thrasher. He was always a good, social boy. He attended school in his early days near where I lived. I have known the family since a child. The sentiments expressed in the resolution I can fully indorse.

The resolution was adopted.

Hon. Lee McDaniels. In this test of feeding cattle, I have tried outdoors and indoors feeding. Feeding outdoors, there are always too many bosses; they will run here and there, and slobber over the feed, so the rest won't eat. To obviate this, I went to work and made stalls for my steers, three feet wide and ten feet long, so they can't turn around or injure themselves in any way, placing the feed in the front of the stall easy of access. In the evening, I turn my cattle in; the first boss is always at the door, and enters first, going right to his stall. He is followed by the second boss, and so on, to the end. The door is closed, and every steer is at his place; the same way in coming out, and I find little or no trouble. I throw out the manure, and let the hogs work it over. I think it a good preventative of cholera. Feeding cattle this way, you find every one gets just the right amount. If he don't eat up his feed clear, don't give him so much next time? I feed corn with the husk on.

Mr. Nelson. What increase of weight did you get from the first of November to the first of May?

Mr. McDaniels. I weigh every steer separate, in the fall, before I commence feeding, and I weigh again the first of May. A few took on 200 pounds, one lost 20 pounds in the spring; the rest fought him away, and he did not get good clover hay; they would make an average gain of 150 pounds. I sold at 5½ cents per pound, to be delivered the last half of July.

Question. How much corn will each steer consume?

Mr. McDaniels. They will consume about forty bushels in the feeding season.

I do not wish to commence feeding corn until December; feed systematic, as you would eat yourself.

Mr. Lancaster. Last spring, during our meeting, I said something about feeding hemp seed to cows that fail to get with calf. Last spring, I had a cow six years old, bred regularly from two years old. She failed to get with calf. I also had two two-year-old heifers, which did the same way. I bred them four or five times, and along in August I concluded I would let the male run with them, and they still come in regularly. I then bought some hemp seed, put the cow in the stable the evening after she had been in heat, and fed her a small amount of the hemp seed each day, and she got with calf. The heifers did the same. I feed this seed with good results.

Mr. Anderson. I had considerable trouble last year in getting my cows with calf. Those bred early I had no trouble with. Some I bred in July and August have come in every twenty to twenty-one days until frost came, then they get with calf.

Mr. Lancaster. I bred 16 cows, and all ran in the same pasture and bred to the same bull, and all got with calf, except those three, and I used the hemp seed with the result mentioned.

The Secretary made the following report:

SECRETARY'S REPORT.

To the Honorable President and Gentlemen

of the Short Horn Breeders' Association:

As Secretary I beg to report that I have expended, as Secretary, for printing and postage on account of this Association \$3.25, for which I ask an allowance.

Most respectfully submitted,

T. W. W. SUNMAN, Secretary.

The Treasurer made the following report:

TREASURER'S REPORT.

To the Honorable President and Members

of the Indiana Short Horn Breeders' Association:

As Treasurer I report that I had cash on hand at the beginning of this meeting

\$34 10

Received from membership at this meeting

11 00

Total

\$45 10

Paid Secretary

\$3 25

Paid reporter

10 00

Total paid out

\$13 25

Leaving on hand at this time

\$31 85

All of which is respectfully submitted,

W. W. THRASHER, Secretary.

The following resolution was offered by Mr. Thrasher:

Resolved, That it is the sense of this meeting that the Short Horns are the best breed of cattle for milk and beef, and therefore the most profitable breed of cattle for the farmer.

The resolution was adopted.

The following was introduced by Robert Mitchell: "To strike out the words 'Short Horn' where it occurs in the Constitution and By-Laws, and insert 'Cattle Breeders' Association.'"

After considerable discussion on the subject the resolution was rejected.

The election resulted as follows:

Officers for ensuing year—President, E. S. Frazee; Vice President, W. W. Clapham; Secretary, J. W. Robe; Treasurer, W. W. Thrasher. Executive Committee—Messrs. Forsythe, Marlatt, and Wilhoit.

The convention adjourned.

SHORT HORN BREEDERS, 1884.

MAY MEETING.

The convention met in the rooms of the State Board of Agriculture, June 3, 1884, with President E. S. Frazee, of Rush county, in the chair.

The programme prepared for the meeting having been misplaced, on motion of W. W. Thrasher, the President appointed Messrs. Thrasher and McCaslin to prepare one for the occasion.

On motion, W. J. Carter, of Westfield, Ind., was appointed to make a stenographic report of the proceedings.

Mr. Thrasher, of the Committee on Programme, made the following report:

PROGRAMME.

"The Short Horns as a feeding animal for the butcher," by G. A. McCaslin, of Franklin, Indiana.

"Affirmed, that there are families of the Short Horns that can not be excelled by any other breed for milkers and butter makers," by E. S. Frazee, of Rush county

"At what age should heifers be bred to make good breeders and milkers." G. W. Lancaster, of Marion county.

Convention then adjourned until 1:30 P. M.

AFTERNOON SESSION.

W. W. Thrasher read the following paper on "Short Horns as a General Purpose Breed of Cattle, and Why."

SHORT HORNS AS A GENERAL PURPOSE BREED OF CATTLE, AND WHY.

The importance of the beef and dairy interest in this and other countries is immense, and of great interest to cattle breeders and farmers of this great country, where we have millions of acres of grass in localities yet unsettled by any except ranchmen and herders, besides millions of acres of blue grass in the older States, which furnish American farmers with grass to raise and fatten, ready for the markets of the world, millions of beef cattle, as well as to supply millions of milk cows for family use and dairies. This being so, we look about to find the breed of cattle that are the most profitable for the demand that must be supplied. Hence we find many new breeds introduced into this country in the last few years. Breeders, farmers and herdsmen of the West are looking for the best breeds to supply the demands for beef and dairy purposes. Now, then, I have settled convictions, after careful experience with several breeds, that the Short Horns are the very best for all purposes. They will fatten ready for the butcher at an earlier age than any breed. After being fattened they make the best beef. They are quick and ready feeders. The Short Horn cows are good milkers; indeed, there are families among them that can not be excelled as a milk and butter cow by any other breed, in my opinion. Take the Kitty Pane family, they were all first-class milkers; or the young Mary's family of good milkers. There are other breeds of cattle that are good; but no cattle can come up with them for all purposes. The Jerseys and Alderneys are said to be a fine dairy breed. If so, that is all they are fit for. They are an unsightly animal. Not a beef animal; only fit for one thing, and I doubt very much if they are first-class for that. This is enough to get the subject before the convention.

DISCUSSION.

Mr. Thomas. I indorse the sentiments contained in the essay, in the main.

Mr. Clore. I am of the opinion that Short Horns will mature early and are more profitable than other breeds of cattle.

W. W. Thrasher. I have been handling cattle in a small way for about forty-five years. I have not had money enough to engage in it extensively, but what few I do keep I endeavor to have good ones, and no other kind. The Short Horn will fill more places than any other breed of cattle; this no expert will deny. They give an abundance of good rich milk, and they are the best beef in the world. Many claim that those muly cattle we have in this country, and Herefords, are the best beef cattle I am sure they are not, and I am not afraid to meet anybody on that question. A man who is an expert can pick them to pieces and show the Short Horns his superior in all points. The Angus and Herefords are a fine looking cattle, but there are three or four points to them that are objectionable. They are too short in the hind-quarters. To be a first-class beef animal it must be on the top; being short in the hind-quarters they can't carry as much beef as they otherwise could. One of the peculiar characteristics of the Short Horn is the length of hind-quarters, broad on the loin and fine shoulder. We do not want

poor meat at home, and if we breed these Polled Angus we will get it. Yet they have many admirers, but the meat is tough and stringy in the hams, and not first-class, and is not sweet and good flavored on the top anywhere from the shoulder back. The same exception will apply to the Herefords. No animal that I have looked at will carry so much nice beef from the root of the tail than the Short Horn. There is no animal living that will feed so readily from the teat as the Short Horn. I am reminded just now of another breed of cattle, I am not certain of the name, I believe they are called the Fresian. They claim for them both excellent milk and beef qualities, equal to if not superior to the Short Horn, but I have seen an inferiority in them. They are a rough, big bone animal. We want a small bone and plenty of flesh, and there is no breed of cattle that will excel the Short Horns in this particular. The Fresians are a good animal, but it requires too long for them to mature, and they won't get fat until they do mature. We can fatten our Short Horn calves at six months old, while with other breeds we can not. We want them ready for sale at any time. As a general rule Short Horns are good milkers, and some families of this breed can not be beat in this particular. I am inclined to think the Alderney and Jersey make a little firmer butter than the Short Horn, but the Short Horn butter is good enough for me or anybody else. It has taken the premium wherever exhibited, which is a good recommendation for it. We want a general purpose animal just like the horse, and that is all the kind of a horse we need in this country. It is just so with the cattle, and we find this desirable feature in the Short Horns.

Mr. Hamilton. There is one thought suggested to my mind in listening to Bro. Thrasher's paper. It will not do for us to come here and eulogize the Short Horn to the detriment of other breeds. He tells us that the Short Horns are ready to sell at six months old, but is it to the interest of the breeders to sell for beef at that age. We have seen some men in our country make a failure in raising Short Horns as well as other kinds of stock.

Pres. Frazee. I let my Short Horn heifers take the straw stack this winter, and they come out well. I am of opinion there are more cattle injured by housing than by keeping them out of doors.

Mr. Robe. Mr. Lockridge, near our place, wintered sixty head in barns. He remarked to me that it was strange that they did not do any better in those barns than they did by wintering out of doors.

Mr. McCaslin. We have had the same results.

W. W. Thrasher. Dr. Stevenson has been the most successful feeder in the State, feeding on the farm 50 to 100 head, and never stabled them. My experience is that you may keep them out of doors about as well as under shelter, but it requires more feed. If you stable them they will look about as well on one-half the amount of feed. Straw stacks are some protection, but I put mine in the stable. I think I save feed by so doing. They should be let out in the morning for exercise, and enjoy the fresh air, unless it is stormy weather. We must be governed by circumstances in this. The President says they will do well outside, if they have a good straw stack, and feed well. More straw stack the better. My opinion is, if we depend on the straw stack for feed, we won't have any better cattle than the Jersey in the spring. All breeds have to be treated well if you expect to realize any profits

from them. It is much cheaper to build a little barn than to buy feed. I have known Dr. Stevenson for forty years. As I said in the beginning of my remarks, he was a most successful feeder, and one from whom we might learn much in this respect.

Mr. Wilhoit. I do not believe in putting them in the stable and keeping them there all the time, but only in stormy weather. I am in the habit of feeding well, say feeding strong, from the start. This is the only way in which we can be successful in raising Short Horns; if we expect to keep up with other States, we will have to feed strongly. Look at the Poland China men, they feed from the start and feed strong, and are quite successful. Calves should be kept fat all the time. Do not be afraid to feed the steers, but push them from the start, and instead of getting five cents per pound you get eight. I am satisfied cows will breed just as well fat as lean. It is a mistaken idea that high feeding will cause barrenness.

Pres. Frazee. I am glad to hear those remarks of Mr. Wilhoit. I thought that fat would produce barrenness. I should like to hear from others on this subject.

Mr. Wilhoit. If you get them too fat you can beat me feeding.

Mr. Cooper. I am a young man in the business. When I first engaged in it I did not feed much, but I feed well now. My experience with all my show cows is that I have calves from them every year. My cows are all with calf again. I think there is no danger in feeding, and had no trouble in having calves. My heifers are now in good shape, and I am going to try them again.

Mr. Wilhoit. I have been in the business of raising Short Horns for a number of years, and my experience is it is best to keep heifers until two and a half years old before breeding. They are just as apt to get with calf at that age as earlier. If we want to make good profitable animals we must keep them right up; as I stated, we must feed them from the start. I am satisfied we have as good blood as Illinois or Kentucky, and our stock only requires proper care and attention.

Mr. Hamilton. Do I understand you to say the quality and blood has been improved by keeping them fat?

Mr. Wilhoit. Yes, sir; if you get one thin, and breed, all the points will go back, but if fat it will stay there.

Mr. Hamilton. If I have a calf and don't wish to sell or show it, I keep her in a good healthy condition, not fat, allowing her to chip around a straw stack, giving her perhaps a little corn at two years old. She has a calf; at three years she has another, and so on. The question is: Would it be better to keep her fat or in moderate flesh?

Mr. Wilhoit. If you keep her poor, she will never make a large cow. If you are going to feed steers, feed from the word "go." If you want to make a good cow don't breed too soon, say two and one-half to three years old. You can raise a calf every year, and have them in good show condition, also, with proper care. If you let them run to fodder, you won't do it.

Mr. Cotton. I gather from Mr. Wilhoit's remarks, that in order to retain a perfect animal, you have got to feed it from first to last during the breeding. I tell our folks that blood will tell; you have got to have the blood if you have a perfect animal. In order to get this good blood, we may expect to pay for what we buy; if we pay a big price for anything, we feel that the article is valuable, and is cal-

culated to draw us out to care for it. We want to impress this fact on the people, that we must have good blood, and while this is essential in order to keep up this stock and make it develop, you must use the cutting box, and prepare your feed well. I am very much interested in the rearing of Short Horns, and want to make it a success in our community. The Jersey is well adapted to those who live in the city, but they are too small for general purposes. It requires beef to build up railroads and wield the sledge hammer, and this we can get from the Short Horn breed.

Mr. Wilhoit. I do not wish to say anything against the blood, but we can spoil the make of an animal by not feeding it. If you want to make a success of it, you must feed. There is no use for us to run to Kentucky when we have just as good as they have, if we will only feed.

Mr. Cole. Mr. Wilhoit remarks that it requires fat to make blood. Our young breeders will take this up, and imagine they can take their poor animals and make blooded stock by feeding. You have got to have the blood if you make any development.

Mr. Kinsel. The necessary point is to get the blood, and then feed well; if you have a thin calf you won't get much for it.

Member. I had a lot of calves; some were fatter than others, and they sold more readily than those in thin flesh.

Member. We must have them fat; fat calves will always sell first. Cattle do well around straw stacks, but I think they require more feed than when kept in the stable. When kept in the stable, they should have the liberty of the yard every day for exercise and fresh air. Our fat cows have been as regular breeders as any we have. Give them plenty of feed of the right kind, and I do not think it will injure them for breeding.

W. D. Cooper. I am for feeding and stabling both. I intend to stable hereafter. I am satisfied, as Mr. Wilhoit says, we want blood, and feed will keep this thing up. We may get the best bull and cow, and cross with them, and they will run out. It is so with hogs and sheep. If a man has good shelter and plenty of blue grass in winter, with a little feed, they do well. You may take a little scrub cow, and you can't get it above 1,000 pounds. It is not so with the thoroughbreds. My bull weighs 2,260 pounds, and had service every day. We can run down sheep and hogs the same way. We must have the blood, and feed afterwards.

Pres. Frazee. This time of year, do you feed your yearlings?

Mr. Cooper. No; I do not.

Pres. Frazee. How is it with you, Mr. Wilhoit?

Mr. Wilhoit. I feed all the time; it pays well.

Pres. Frazee. Will a two-year-old heifer get with calf, when fat, as well as in thin flesh?

Mr. Wilhoit. I think it will.

W. W. Thrasher. I am glad to see the interest manifested here this evening, and especially among the young folks. The tendency in this country is to keep too many cattle. The result is, they don't keep good ones. Too many of our Western people are trying to do too much of everything, and don't accomplish much of any thing. We notice this in people trying to cultivate too much land; they had bet-

ter cultivate ten acres of land, and raise 1,000 bushels, than to tend fifty to get it. Cattle men often fail right at that point; they endeavor to feed more than they can feed properly. I remember that Bro. Cooper took the position that cattle should not be fat, and I have seen him show at many fairs, and get no premiums. All the lack was in feeding; he has got over it now, and is on the right track, and so is Bro. Wilhoit. All will make a failure if you don't feed. I used to show at every fair that I could reach for thirty years, and have taken many premiums. I find that a poor animal of any kind will not bring as good a price as one that is fat. You must bear this in mind; it is one of the essential things in stock raising. Cattle that are well fed, and in good condition, attract the attention of the people passing along the public highway. They will stop and inquire something about them; but if common stock, they don't notice them. If you want any kind of stock, do treat them well; I look upon this as an essential feature in stock raising. I had two cows I sold several years ago; I had no trouble in getting premiums wherever exhibited, but if they had been poor, I would not have got any. The best advertisement is to show cattle, and they must be fat. Several of my neighbor breeders have found this out by sad experience. I am satisfied they don't make quite as good sucklers, but for show purposes they must be fat.

W. D. Cooper. When fat the udder don't develop quite so well.

Mr. Wilhoit. I think there is something in the fat.

Pres. Frazee. My experience is, they don't develop quite so good milkers as when not quite so fat. If we have a fat horse he will almost always sell at a good price; it is just so with cattle and sheep and hogs. We have got to feed them right from the first.

Mr. Hamilton. I fear that some think that I am in favor of starving stock. The feed and blood go together, and you can't divide it. My advice is, if you can't feed twenty steers you had better feed ten; if you can't feed ten, feed five; if you can't feed five, feed one. Beef cattle must be cared for in cold weather by protection from storms, letting them out two or three hours every day.

Mr. McCaslin. We must stable and feed well. Last winter I fed twenty head in the stable, and curried them; it takes time and money, but it will pay.

Pres. Frazee. Will heifers fed on corn, breed as well as on chop feed.

Mr. Wilhoit. No, sir; I do not think so. I had a heifer fed on corn, and never bred. Corn will make fat, but for breeding purposes we want something else.

Mr. Clore. Corn is too feverish for breeding animals; we need mixed feed for this purpose. Those breeders in Canada tell us to feed oats and roots, but not much grain. We must not let our animals get poor; if we do, the Illinois and Kentucky men will beat us at our fairs every time.

Mr. Thomas. As a rule, show animals are not bred until they are two and one-half to three years old. I want an expression on this subject, whether it is the high feeding which keeps them from milking so well, or breeding young the milking qualities develop so well?

Mr. Wilhoit. I don't think that will have anything to do with it. I do not breed under two and one-half to three years old, and I think I can show as good milkers as any one in Short Horns. Breeding young does not make any better

milkers than those bred at two and one-half to three years old. I let the calf take all the milk it can, and it has to be a pretty good size before it can take all

Mr. ———. After the calf has taken all it can, do you let the calf run with the cow?

Mr. Wilhoit. It is better for both cow and calf to part them, and turn them together about three times a day.

Mr. ———. Would it be better to let a calf run out or keep it in the stable, now?

Mr. Wilhoit. I would let it remain right in the stable; if you want to put flesh on I prefer feeding cut oats with a little meal. Grind the meal coarse, and mix one-third amount meal, ship-stuff or bran, mixed with cut oats. A little oil meal would help. In grinding corn I never use the cob, now. I did before I knew any better, but I think there is no strength in the cob, and I would prefer hay. I keep my calves in the stable until they are ten months old, and then turn them on grass, and they do well.

Member. Do you keep your bull in the stable all the time?

Mr. Wilhoit. No, sir, not all the time, unless he is inclined to be breechy.

On motion, Mr. Thrasher's essay was adopted as the sentiment of the convention.

Mr. McCaslin not having prepared an address as requested, spoke briefly on the subject assigned: "Short Horns as a Quick Feeder for the Butcher."

"Mr. Chairman—The general opinion of men who handle Short Horns is that they are the best paying animal we have for beef purposes. Other breeds in some locations and conditions will excel, but as a general thing the Short Horn is superior. We find at the National Stock Show that the majority of premiums were awarded the Short Horn breed. At the last Fat Stock Show at Chicago, the same men received the highest honors, proving out the Short Horns favor to a great extent. Its feeding qualities fully prove to us that they are the best feeding animals we have. It is an important item to feed well. Many breeders do not feed well, which has, in some instances, caused the Short Horns to be abandoned and other breeds taken up. The Short Horn is the best feeding animal, and most profitable up to any age. We can put them into beef at any time. I am of the opinion that they are most profitable at two years old, while some contend that three or four years is preferable."

DISCUSSION.

Mr. Cole. I think we will all agree with the gentleman that the Short Horns are the best feeders we have. I would like to hear a general expression on this topic.

W. D. Cooper. All those steers at the Fat Stock Show were either Short Horns or mixed with that breed. Sometimes a Hereford bull and Short Horn cow; the Hereford putting on the horns, while the body was Short Horn. I wondered why it was reported graded Hereford. I inquired into this, and invariably found that the sires were Herefords and the mothers Short Horns, but gave it the other way. These crosses are far ahead of the full blooded Herefords, and I think they take it from the Short Horns.

Mr. Clore. It is well known that the Short Horn will improve any breed. It will improve the Hereford as well as the scrub.

Mr. Sankey. I want to know what family is considered the best of the Short Horns.

Mr. McCastlin. We find a fine bone in all families of the Short Horns. A fine boned animal is soon ready for market, while a coarse boned animal will take longer, and more feed is required.

Mr. Wilhoit. That is my experience in feeding Short Horns. The bone has something to do with the flesh. A heavy-boned animal will not mature as well at three years old as a fine bone at two. To test this, I fed two cows together, one a roan and the other red; one weighed at two years old 1,625 pounds, and the other 1,820 pounds, both well fed; the red took one-third more at every feed than the roan. You see at once which was the most profitable animal; the large one was a good animal, but heavy bone. Where you find a big bone, there is also a big gut. It is the same with hogs, and all other animals.

W. W. Thrasher. What has been said about bone is true; the smaller the bone the better the feeder, other things being equal. We frequently hear men say after breeding their cows, when the calf comes, it is the biggest calf they ever saw. I never want to see it, for it is no account when they tell you that. It is too big. I don't care how little they are, the small bone is evidently the best feeder. There is a difference in the family of cattle. As to feeding qualities, I have reference to one mentioned in the Herd Book, called the Young Marys; they are the best feeding cattle I have ever known or handled. They feed up to my satisfaction better than any I have ever had. The Young Mary was an importation from the old country, and all her progeny are called Young Marys. They are a fine family; the more of it in them, the better for feeding purposes.

Mr. Wilhoit. The Young Mary is as fine a family of cattle as we have.

W. W. Thrasher. The old Duke of Airdrie, I saw before going into the show ring; a number one animal all through, but never got a first-class show bull to my knowledge. He was first-class on the back, and on the shoulders, and you never saw a drooped animal from him. There was a cross back of him that produced this; but it was said, for twenty or twenty-five years, that he did more towards bringing up the Short Horns of this country than all others. We say some times, a perfect animal; we mean those in whom we can find no faults, but take it all through, it is a perfect one. I thought this of the old Duke; he was as mellow as a coon, the hair under the long hair on him seemed to me a kind of fur.

On motion of Mr. Thrasher, the convention unanimously adopted that the Short Horn breed of cattle were the best feeders.

Mr. Thomas. I would like to have an expression as to the marble qualities of the Short Horn meat, and also the handling qualities.

Mr. Lockridge. I have never seen cattle killed to much of an extent; however, I deal in steers both feeding and grazing. I have some little ideas about the handling qualities of beef. My ideas may be correct or wrong. I have always thought an animal that had a soft, mossy coat of hair, rather loose on the ham, generally of a light color, made the best handling animal. A roan animal with those characteristics I have mentioned, are nearly all good handlers. I don't want the hide too thick or too thin, and loose like a dog's hide; we want a kind of springy touch, which I can not explain. A mossy coat of hair indicates a good handler. I at-

tended the Fat Stock Show at Chicago, and saw some fine specimens there, both of the Herefords and Short Horns, and last year one of the Polled Angus. After the carcass is on the block, I doubt whether one can tell whether the beef is from a Short Horn, or Hereford, or Poll Angus, but in my opinion the best animal the world around is the Short Horn.

Mr. Thrasher. As to what quality of animal will make this marbled, tender, juicy beef. To begin with you never find it in a hard animal. A soft handler will indicate that every time; one that is soft and mellow to the touch, that when you lay your hand on them they spring right back. Those animals which fatten in lumps and don't handle smooth are not good beef, but those that handle soft and smooth are the most juicy and tender beef. Mr. Lockridge knows better than to get up here and say that any of those breeds are good as the Short Horn; he is better posted than that. Those black cattle are not long enough in the hind-quarters. The Fresian cattle are much better handlers than the Herefords. I never put my hand on a Hereford that was a good handler. Those qualities that Mr. Thomas was inquiring about come from those animals that are soft and mellow to the touch, almost like a coon skin. When you find one of this kind you get good marble beef. Many can tell what is a good animal by looking, but better by handling. Those experts can tell by looking, and will take the best and leave the worst on your hands. In 1852-53 I was on a committee at the World's Fair, at Springfield, Ohio. In looking at some fine heifers my attention was particularly attracted to a roan which I thought was a beauty. It stood by a white one in the ring. One of the experts on the committee went up and put his hand on the roan, and said it was no account. I asked the reason why. He then put his hand on the white one and said it was worth more than the other. I felt of them and there was a decided difference in handling. Then he explained it just as it has been explained to-day. The two animals were slaughtered, and the meat of the white one was marble and like chicken meat, and the other looked like bull beef. What I have read on this subject bears me out in this assertion.

Mr. Wilhoit. I butchered for twenty years. We did not have such beef then as we have now. If you get beef, fat from a calf up, you get good beef. Take a steer, if he is a good handler it indicates that his flesh is marble and of the best quality. The longer you feed the more tender and juicy the meat. At Chicago they feed them until five years old, and have good beef. It has got to be fat to make it good and tender. You never take a soft handler but what you find it good beef.

Mr. Thomas. I attended the Fat Stock Show at Chicago, and saw some of those animals slaughtered. I examined Roan Boy and found him soft and tender. Red Major was medium firm flesh; Poll Angus was more hard. The meat was darker and not so grainy and marbled as Roan Boy. The fat cow which I sold a few years ago, and spoke of it here before, was slaughtered at Rushville, and was as soft an animal as I ever put my hand on. In dressing her the fat fell off of her hind-quarters in flakes to the amount of 160 pounds.

Mr. Lockridge. A steer may be a good handler and have firm flesh, but when you put your hand on the coat you want it to spring back. If it were soft and flabby it would not do so. We do not want it so soft as to retain the impression of the hand, but spring back like rubber. Those animals having this characteristic get

fat rapidly, and when slaughtered make the best of marble beef, and bring the highest prices in the market.

President Frazee. I shipped a cow on the cars last year that got frightened before calving, and when the calf came it had a black place on it as large as my hat. I wish to know if the fright caused this spot?

Mr. Lockridge. I have no faith in impressions. I am not sufficiently informed as to be able to say any thing about such. I have seen so many contradictory causes that I can not believe that the foetus would take on a fright of the animal. If there are any here who attended the National Convention, they will remember we had there Prof. Miles, of the Michigan Agricultural College. This question was sprung during the meeting, and he took the ground that the impression remained on the foetus. In illustration of that theory, he claimed that during the war a cow was kept in the same pasture with a government mule, the mule having the letters "U. S." on its hip. The cow calved, and the calf had "U. S." on its hip the same as the mule. She calved again, and the calf had "U. S." on its hip also. This theory is accepted by many. The reason I do not believe in that theory is that we know there are no nerves connecting the animal with the foetus, therefore, how can an impression run from the animal to the foetus. I do not know how it could be, still there are men whose opinions should have great weight, take this stand that impressions are made on the foetus.

Mr. Thrasher. We know there are freaks of this kind in the human family. The theory is that it comes from a fright, but I can not explain it. It is, however, a fact. I have heard men say that ewes in lambing, that never had produced black lambs, had been frightened with black dogs, and black lambs would be the result. This black spot, no doubt, on the calf which Mr. Frazee speaks of was caused from fright.

Mr. Thomas. In my opinion the nerves between the foetus and the mother will affect the offspring.

Mr. Cole, of Shelby county. I am a young breeder and I would like some one to explain what characterizes a perfect Short Horn animal.

Mr. Wilhoit. The ruling point of an animal is roundness back of the heart, which is difficult to fill. Beginning at the head you want a nice eye, ear and horn, a good front, a flat, level back. The tail should hang nice and straight, set well on the hind leg, and fore leg tapered.

Mr. Lockridge. We all have different opinions on this subject. There is a general rule laid down. Beginning at the head, which should be short from the eyes to the nose, and the female somewhat dished. Eyes large and full; mealy muzzle. Between the points of the horns the space should be broad, little full in a bull and Roman. Horns not very large, but in bulls large at base, which indicates perfection. The nearer an animal conforms to a parallelogram, that is long square backs, the nearer it is to a perfect animal. The brisket should be wide and forming of the breast some little width. Behind the shoulders the ribs should be full so that a line or wand laying on the back would touch all along, and not look like the roof of a house, but go out to make a nice round body, level on the back, and a little higher on the points. The hip should be level and rounded out with the tail bone.

The legs should be rather short, and the hind ones rather straight. These are about my ideas of a Short Horn.

Mr. Thrasher. Is it not more difficult to get it good in the shoulders than in other points?

Mr. Lockridge. I think so. Some who are considered experts, even Booth, said he could change it to an upright and smooth shoulder. The Dukes always show shoulder-bone, the bone runs out. Mr. Booth covered all that with flesh, and raised the crops from behind the shoulders, which is a good improvement in the Short Horns. I think this the most important point.

Mr. Thrasher. Why do you want this full in the crops?

Mr. Lockridge. Because, when they stand out full, there is health; if it is the reverse, it shows there is a weakness of the vital organs. The natural shape, as nature made it, conduces to good health, and where we compress anywhere, we injure the health of the animal. This is a physiological law. These vital organs are located in between the forelegs, and give good health to the animal's vitality; therefore, we want them wide between the forelegs.

Mr. Thrasher. Is not the meat behind the shoulder just as good meat as any?

Mr. Lockridge. I do not know. I have heard it said, to draw a line immediately back of the shoulder to the thigh, the meat above that line was the best. This would take all the back.

Mr. Thomas. Does the shape of the legs affect the quality of the animals? I have observed more closely in the feeding of hogs; some of them get broken down, and I don't like them. If you take a hog with short toes, they will stand straight, while those with long toes spring back. The same thing I have noticed in a Short Horn cow; so much so, that it affects the straightness of the leg of the animal.

Mr. Wilhoit. If a pig stands up straight, he keeps his toes worn off short; but if he stands on his heel, the toes grow out long. It is also the same way with the Merino sheep.

Mr. Thomas. Mr. Wilhoit and I differ a little as to the effect of standing straight. My experience is that the toe never inclines backward standing straight; but having a long toe, they spring back on the heel, and break down. I have noticed bulls crooked in the hind legs by the hoof being long; by trimming the hoof off, it frequently comes back to the natural place. The reason I spring this question, I want to buy a bull. I was in hopes to get an expression as to whether that objection could be remedied by trimming the hoof. Is there any danger of transmitting this failing to calves.

Mr. Lockridge. I would not want to buy a straight-legged bull if his body was not all right. I would not refuse to buy a bull if his legs were not right, if I could not get any better. Some of the best animals I have seen in my life, have had crooked hind legs. I would rather have a crooked hind leg and fine loin, than to have a good leg and bad loin.

Mr. Lancaster. I do not like a crooked leg nor long toe. I have an animal in my herd with crooked legs, and sled runner toes, which makes it very bad about her slipping in icy weather. I would not want a boar with sled-runner toes, as I think he is liable to break down in the back. If I had that kind of a boar, I would expect to have that kind of pigs, and the same in the way of cow and calf. I think

they will incline to breed after, in this line. When traveling about in the snow, they are liable to slip badly.

Mr. Lockridge. The legs of the Short Horns are the nearest straight of any cattle in the world.

The convention adjourned until 9 o'clock to-morrow morning.

WEDNESDAY—MORNING SESSION.

Convention called to order at 9 o'clock, with President Frazee in the chair.

The Secretary being absent, Mr. Patton was appointed to fill the vacancy.

Mr. Mitchell offered the following resolution relating to the Fat Stock Show :

WHEREAS, The Board of Agriculture propose to hold a Fat Stock Show at Indianapolis during the year 1885, and such exhibitions being of great importance in demonstrating which are the best animals for producing meat, the most profitable age to slaughter, and is a practical school for the feeder, the buyer and the butcher ; therefore,

Resolved, That an exhibition of such a character at the Capital City would result in great good to the meat-producing interests of the State, and attract the attention of foreign buyers to the commercial advantages of this point, as a center of trade. To this end the Indiana Short Horn Breeders' Association will in every way encourage such Fat Stock Show, and hereby agree to donate for such purpose the sum of \$200.

Following the resolution, Mr. Mitchell said : There was an effort made last fall to hold a Fat Stock Show, which seemed to be rather immature. I was appointed to solicit contributions to defray expenses of such exhibition, and had some \$1,500 subscribed, when the floods came and interfered ; so we had to abandon it for this reason. It being a year in which the attention of the people is greatly absorbed in politics, we thought best to lay only the ground work for next year. I am of opinion that these exhibitions are doing more to educate farmers in the growing of stock than anything else. If there is any class interested in the production of beef, it is certainly the Short Horn men, and if we rest on our oars in this matter the result will be detrimental.

Mr. Lockridge. I was in correspondence with Mr. Mitchell in regard to this project of holding a fat stock show in Indiana. If my recollection serves me right I discouraged the idea, on the ground that we were not prepared to give an exhibition this year, as the notice was too short. As to holding one in the future, I hardly know what to say. I have advocated all along a union with Illinois, inasmuch as we are near Chicago. I am inclined to think that one fat stock show, rightly patronized, would do more good than a number on a smaller scale. These shows should be made self-supporting. Last year the Chicago show barely made expenses. If here in this State, we get up one that is self-sustaining, I would vote for it. Indiana is somewhat behind on this question of cattle breeding. We need all the encouragement in that direction we can get. As I understand the resolution it wants this association to donate so much money. Mr. President, I have not heard the report of the Treasurer and don't know how much money there is on hand. I presume there is not a large amount. We have no assessment annually and no way of

getting money unless individual members come up and donate it. I do not think it right for this association to-day, composed of twelve or fifteen men, to pledge \$150, and I have my doubts whether they will do it. The question is whether we should act on that resolution to-day as we are few in number. If we are going to change our constitution so as to hold our meetings in the winter, we have one year then before the show is anticipated and we might then do something, but I have my doubts whether we should take action on this resolution this morning. I am in favor of a show of this kind if we can make it pay, but if not, then I would rather go and help Chicago build up one there like Smithfield in England, the biggest show on earth. "In union there is strength," and in this as well as anything else.

Mr. Mitchell. The object of this resolution is to draw out a discussion. I attended the Short Horn show of Illinois last fall. The Short Horn breeders met and took an interest in the exhibition. It was their show and they agreed to duplicate every premium at the Kansas City show. If this amount is too large let us cut it down, the object is to get the thing in motion. As to the National Show we do not want to antagonize it, but we want a show of this kind at home. If we can hold ours about the time the Chicago men hold theirs, or soon after, we can get them to come here, where we show our facilities for handling the meat product of the West. To insure this the breeders must go to work and show a willingness to do. The Illinois folks have passed a resolution that any animal which takes a premium must be slaughtered there on the ground; therefore, they could not come in competition here. I know there are men in this State who would take pride in a movement of this kind. It might be better to leave this matter for further consideration at next meeting. It is a matter new to many, and if it is left over until the next meeting we should earnestly investigate the merits of such an exhibition. The Hereford men are pushing that breed of cattle for all there is in them, and I am satisfied the Short Horns can be pushed ahead of the Herefords.

Mr. Thrasher. There is no one in this Association who favors this show more than I. It would be beneficial to the stock raisers of this country in getting posted, and have a tendency to increase the wants of Short Horn cattle, because there are no other cattle that can compete with them. The common farmer would see this and cause them to begin raising this kind of cattle. While I am in favor of such an exhibit, we had better hold on a little and not make a failure of it; but if the money can be raised I am willing to go ahead with it.

Mr. Mitchell. Suppose we fall \$300 or \$400, or even \$500 short in the operation, I claim the State Board of Agriculture, representing the industrial part of the State could not spend that much any better.

W. W. Thrasher. The State Board is in worse condition than we are, and can not do much for us. I do not want to be understood as opposing this movement; the time has been when I would have went down deep in the pocket for any thing of this kind, and we have young men to-day who would take an interest in this if the subject was on a perfect footing. I move to lay the resolution on the table until we see a little further in regard to changing the time of holding our meeting.

Mr. Mitchell. Let us not kill it in that way.

Mr. Thrasher. I move, then, to refer it to a future meeting, say to the January

meeting. We have no right to pledge this association for anything, as there are but few present; for this reason I think it would be proper to so refer it.

The resolution was referred to next meeting.

Mr. Lockridge. I move that a committee of three be appointed to take into consideration the feasibility of changing the time of holding our meetings.

Motion carried, and the Chair appointed Messrs. Lockridge, Mitchell and Dungan, as said committee.

Hon. E. S. Frazee read the following paper on "The Short Horn Families as Milkers:"

SHORT HORNS AS MILKERS.

Short Horns once were noted for their milk and butter qualities, but owing to the fact that the American breeder has made a special feature of their beef-producing capacity for some time, the other equally valuable quality has been lost sight of. We, as breeders, do not set forth the fine milking qualities of Short Horns as we should and as they deserve. When one buys a cow for milk, it is usually one that is good for nothing else, because he has been taught that other breeds are only good for beef. Short Horns were originally bred for their milking qualities as they are so bred in England at this time. In this country, despite the fact that they have been bred for years with the single purpose of making fine forms and much fat, yet in some families their milking qualities have deteriorated but little, and they can still hold their place as a superior milk-producing breed. Their value as a beef animal is conceded on every hand, and if we, as breeders, will strive to regain the milk-producing qualities that have been sacrificed for fat, we will then combine all desirable qualities in an animal that has no undesirable ones, furnish a breed that suits the wants of all classes, and realize large returns for our trouble.

DISCUSSION.

Mr. Thrasher. This paper discusses a question of great importance. Every person wants a good milker, and I am satisfied that this important feature can be found in the Short Horn equal to any breed on earth. There has been some drawbacks as regards the milking qualities of the Short Horns, from the fact we have been keeping them for years not for their milking qualities, but more especially for their beef qualities. I would not recommend letting the calf run with the cow; in my opinion, it will ruin any cow; the calf can not take all the milk, and she will adapt herself to what the calf can take, and in a few weeks she will not give enough for it. The paper spoke in reference to the different families of this breed. I am intimately acquainted with the Kitty Payne family, which are good milkers, as well as fair beef qualities. The Young Mary family alluded to this morning are not quite so good, but over an average as to milk and butter qualities, and they are better beef producers than the Kitty Payne family. There is not a breed in Europe or America that can excel the Young Mary in this respect, while the Kitty Payne

have been notorious milkers; their beef qualities have not been thoroughly tested. The Short Horn breed received a "set back" from the importations of 1817. There was a breed of them imported by Mr. Sanders; some that were brought over were called "patent stock," and were universally mean milkers, and that was a damper at the start on foreign cattle; but we are making some advancement in that direction, and we have now got good milkers. I have a cow of the Kitty Payne family that is as good a milker as ever walked the earth. I have kept others along by them, and had the same treatment, and they are not so good. A cow is a machine that converts food into milk and butter, and the larger the machine is, and other things being equal, the better. This Kitty Payne cow of mine will now make two and one-half pounds of butter per day, and the calf is eight months old, or fifteen pounds a week. The first two months after calving she will make twenty pounds per week. She is eight years old, and is an exception of anything I have owned. I noticed one thing this morning which struck me with force. As I was coming from Irvington to the city, I think I passed 200 milk cows, and saw but one Jersey among them. I do not want to say anything against the Jersey, but we are to discuss the merits of the Short Horn. The butter from the Jersey is perhaps a little more solid, but the Short Horn is good enough for any body. The Jersey will make a little more butter to the gallon of milk than the Short Horn. This I tested when I owned one. The cream rises to the top readily, but after you skim it off the milk is worthless, while the Short Horn will give several gallons more, and summing it up they make as much cream, and the milk is good after skimming. We have all the elements of superiority in the Short Horn, if we take advantage of it. A cow kept constantly fat from a calf up to age, will not make quite so good a milker. Mr. Wilhoit claims that they will breed just as well if fat, but are not quite so good milkers. I think they should not be kept fat for the butcher all the time, as it will injure the milking qualities. In the Short Horn, we have a cow that we are proud to look upon, as combining the qualities of milk, butter and beef.

Question. May the milk qualities fully develop without interfering with the beef qualities?

Mr. Thrasher. I think it can be in the family referred to in the paper, the Young Mary.

Question. Are all well developed Young Marys good milkers?

Mr. Thrasher. They are always good milkers. The Young Mary is a good handler, and when that is the case they are pretty apt to be good milkers.

Mr. Hughs. I have not had as much experience as some others, this is the reason I do not claim to be able to give you much knowledge as regards milking qualities. I agree however with Mr. Thrasher in his remarks. I claim that when a cow is high fed and is very fat she is not quite so good a producer of milk as one a little lighter in flesh. I prefer to keep my cows in ordinary flesh, and by so doing, have been successful in my breeding. We have always got as much for our butter as those who breed the Jersey, and my experience is that if we feed the same kind of feed they make just as good butter; and after we are done with her for milking purposes the Short Horn makes excellent beef, while the Jersey is comparatively worthless aside from their milking qualities. The Short Horn is a general purpose cow and more generally meets the demands of the people.

Mr. Lockridge, of the committee on time of holding the next meeting, reported, recommending the fourth Tuesday in January.

Pending the adoption of the report, Mr. Lockridge said: "We thought it advisable to have all the stock associations to come in rotation, so we can attend all those industrial associations with as little expense as possible. Another reason why we propose the change is: the annual reports of the State Board of Agriculture are issued in the Spring, and when we hold our meeting in May we can not get our report in until next year. Whereas the reports of the Wool Growers, Swine Breeders, etc., come out in the report of the same year."

Mr. Thrasher. I have no other feeling but a good one towards those who desire a change in the time of holding our meetings, yet I fear the result of such a change will not be satisfactory. The cattle men will hold their meeting and then return home, while the hog and sheep men will not come until the day set for their meeting. I do not see that anything will be gained by the change. Besides we should be with our stock as they require care and attention at that time of year.

Mr. Mitchell. It is right for us to make the change as this is a busy season of the year, much more so than in January, and by the change we will have a better attendance then than now. The fact of getting the proceedings in the report is in its favor. I am interested in attending those conventions, and so are many others, and I think it would be wise to try the change at least.

Mr. Hughes. I favor the change, yet I live remote from the city and have attended but few times. I hope the report will be adopted.

The report was adopted.

Mr. Thrasher. We have a paper on the table regarding the milking qualities of the Short Horn, and I desire that we may not lose sight of this important subject. For the benefit of the young folks I wish to state how a cow may be spoiled. There are several ways in which it may be done. Take a cow and turn the calf with her and in a short time the cow is ruined. If you let a man milk at five o'clock one morning and at eight or ten the next it is sure to ruin the cow, especially if you use any violence. You do not have to follow this course long until she is spoiled. Cows should be treated kindly and milked regularly, as well as fed at stated times.

The election of officers was had, which resulted as follows: President, W. W. Thrasher, of Fayette county; Vice President, Robert Mitchell, of Gibson county; Secretary, J. W. Robe, of Putnam county; Treasurer, E. S. Frazee, of Rush county.

On motion of Mr. Sankey, the Secretary was instructed to arrange a programme for next meeting.

The convention adjourned to the 4th Tuesday in January, 1885.

INDIANA JERSEY CATTLE BREEDERS.

The Second Annual Meeting of The Indiana Jersey Cattle Breeders' Association occurred Tuesday, January 29, 1884, at the rooms of the State Board of Agriculture. President Jackson in the chair. Upon the opening of the meeting the President read his annual address.

PRESIDENT JACKSON'S ADDRESS.

The Indiana Jersey Cattle Breeders' Association was organized a year ago for the purpose of bringing breeders into communication, to advance the common interest by establishing honorable and fraternal relations, and to secure the benefits of co-operation and united action to bring into prominence the merits of this breed of dairy cattle; to collect information and to disseminate knowledge concerning the breed, their influence upon the dairy and value for the improvement of cattle devoted to this interest, believing that the progress of the agricultural interests of the State demands a more intimate knowledge of the value of farm and dairy products, and that the acquisition of such knowledge will lead to the more general introduction of this butter-producing breed.

These are some of the objects set forth in the constitution of this organization, and a vigorous and determined effort on the part of each member of the association to carry out and advance the cause, will develop results that have never yet been attained. The day has gone by when the pre-eminence of the Jersey cow as the largest producer of the finest butter and cream is questioned. This is *her special* mission, and in this direction she far excels all other breeds. Her merits are being recognized wherever she is known, and she is now pretty generally acknowledged to be the "great butter cow."

In the dairy districts of this great country, where making butter is a specialty, it is only a question of time when the Jersey cow and her crosses will occupy the whole field, for from *no other* source can so much butter be produced of as fine quality, and for which so great a revenue can be derived, as from these little Channel Island cattle.

It is not essential that the dairy herd should be pure Jersey blood to produce astonishing results; half-breeds, three-quarters, and unregistered animals are as profitable to the dairyman in the manufacture of butter as are the thorough-breeds, and he must not allow himself to be discouraged and abandon the idea of adopting the Jersey cow, or the grades, for his butter makers, on account of the occasional sensational prices that are paid for some of the finer specimens; for while it is true it would be unwise to pay \$3,000 to \$5,000 for a cow, expecting to get profitable returns from her butter product, these transactions in high prices are based upon solid value and merit, and must result in good, eventually, to the butter dairyman in elevating the standard and developing the butter capacity of the best strains of the breed.

The use of a good thoroughbred Jersey bull in a herd of good milking cows will produce a class of dairy stock for butter-making qualities that will prove a valuable investment. Good to first-rate bulls of the breed can always be obtained at from \$100 to \$200, and no outlay will pay better.

During the past year phenomenal records of butter have been made, attested to by the highest authority; records that a very few years ago would have been considered entirely impossible. A cow that could make fourteen pounds of butter in a week was esteemed a wonder, and of the many thousand of registered Jersey cows, in 1882, in a list compiled by Major Campbell Brown, of Tennessee, only about 170 reported having made that amount; seven of them twenty-one pounds and over. The largest yield being twenty-five pounds three ounces; this by the "Jersey Belle of Scituate." This record stood alone for a time, but soon other extraordinary performances were reported. Owners of cows of large butter ability were stimulated by an ambition to excel the highest yield yet made, and as a result a more general course of testing cows for butter has been adopted, and very soon Major Brown will issue a second table in which we expect to find the number of "fourteen-pound" cows increased three or four times over those of two years ago.

These instances all go towards illustrating the immense ability of the Jersey cow to produce butter, and should induce us as breeders to exercise all the skill and judgment possible in the development and improvement of the best strains of the breed.

A course of testing capacity for butter under the authority of this Association is one of the important means by which we are to determine the true value of the Jersey cow, and should be earnestly encouraged by every member. This is the plan by which we are to know the true butter strains, and to distinguish the good from the unprofitable, and which will enable us to select breeding animals that will transmit undoubted rich qualities without failures or uncertainties. The recent report of the committee appointed by this Association to superintend the test, has developed a yield for a Jersey cow that stands amongst the highest on record, and an investigation proves that she is only one of a family of heavy butter makers. And so it will be found in almost every case, that the butter qualities and ability to produce cream largely is generally transmitted with certainty from one generation to another.

The question of importance is to ascertain the strain by authoritative tests, and pursue rigidly that line of breeding. Fine results are sure to follow. This work

alone by the Association is of sufficient importance and value to the breeding and dairy interests of the State, and its influence will extend far beyond State lines; but there are many other important and highly commendable features embraced in its objects as stated in the beginning; and my earnest desire is to see the Association grow in numbers and importance with each succeeding year, until it shall rank where it belongs—one of the most successful, useful and profitable organizations connected with the State's agricultural interests. Benefits will surely accrue to every one interested in the affairs of the dairy, just in proportion as this Association gains support and encouragement from those engaged in this great industry.

The Secretary's report was submitted, accounts audited and approved, showing a balance in the treasury of \$20.60. The society has a complete set of A. J. C. C. Herd Register, and also of Jersey Herd Book, Island of Jersey. The names of C. H. Miller & Co. (F. W. Miller), of Indianapolis, and William E. Higgins, of Metzger, were presented for membership, and duly elected.

The essay by James P. Ross was then read by the Secretary, Mr. Ross being unable to be present.

"THE JERSEY COW: HER VALUE AND THE NECESSITY FOR SYSTEMATIC TESTING."

JAMES P. ROSS, OF WABASH, IND.

An island in the English channel, where the year is almost like a day in June, where flowers bloom and grasses grow the whole year round, we find the home of the Jersey cow.

Upon this little island, but little larger than the city we are now assembled in, we find that there are annually raised several thousand Jersey cattle, and that they are sent into almost every clime and country.

If we stop to consider the dense population of the island, that there are two inhabitants to every acre of ground, we wonder how they live, and raise so many Jerseys, but we must remember that the soil is very rich and productive, while the inhabitants are very industrious, and allow nothing to go to waste, and that the rearing of the "little butter cow" constitutes their chief mainstay of agriculture.

They have a great advantage over us here in the north, in that they can tether their cattle out every month of the year, and have no winters like ours, with the mercury away down below zero, to contend with. Many theories about the origin of these cattle have been advanced, but nothing definite is known concerning them. We know that they were created for some wise purpose, and that purpose seems to be to produce the richest and best milk from a given amount of food, and make the largest amount of butter of any breed or race of cattle known. She stands today, in the very fore-front of the butter makers of the world, and is known, as she is entitled to be, as the "Queen of butter cows."

HER VALUE.

How can we estimate her value? We know the prices she commands in the markets of the world, as a butter cow, exceed by far that of any other race or breed, while her butter everywhere brings a higher price than that of any other cow, and in many cities fancy prices are paid for the same.

But her real value is in her offspring. Year by year, those who are so fortunate as to own a "Eurotas," "Mary Anne," "Chrome Skin," "Hazen's Bess," or a "Marjoram," are certain to add to their exchequer a few thousand dollars by the sale of a calf.

We find, by referring to the report of the Jersey sales of 1883, that there were sold at public auction, in the United States, 1,688 head of Jerseys, at an average of \$409.01 per head, and 3,284 head of Short Horns, at an average of \$205.56 per head; and 139 head of Holsteins were sold, at an average of \$373.60 per head. Truly a good showing for the Jersey. If we could give the number sold and prices obtained of those disposed of at private sale during the same period, what a grand showing it would make.

It is estimated that there are now in the United States 15,000,000 milch cows, from which is annually made 1,300,000,000 pounds of butter. Why not reduce the number of cows to 10,000,000 Jersey cows, and then make more butter than is now made out of the 15,000,000? It is safe to say that it could be done by so doing; and think of the labor, feed and expense that would be saved. Five million less cows to milk would be quite a saving of time in this busy world, where the days are entirely too short for the majority of people, who "earn their bread by the sweat of their brow."

THE IMPORTANCE OF SYSTEMATIC TESTING.

It is an acknowledged fact that fully forty per cent. of the cows now in use in the United States are unprofitable as milkers and butter makers.

How can we find out the good ones, or separate the good from the worthless? We can not walk through a herd and say, this cow is a good one, that one is a fair one, and this is a poor one, by simply looking at them; neither can we tell by their pedigree or the color of their hair. One cow may be a large milker, and another one give only half as much milk as the large milker, and yet she may produce more butter in a year, month, week or day, than the one who gives the largest flow of milk.

We must weed out the bad ones, and the only way to do this is by a system of testing each cow's milk and butter by the churn and a good pair of scales.

It is to our interest, as breeders, to do this, and know just what each cow in our herd is, and not guess that she will make so many pounds of butter in a week. A cow's milk may throw up a large per cent. of cream in the cream guage, and yet when the same is churned it may not produce as much butter as one who does not show as good a test by that standard. How frequently we have been disappointed in cows in our herds.

We may have our heart set upon some particular cow, and think, or try to at least, that she will produce more pounds of butter than the one we think the least

of, and yet when the real test comes the cow that we think the least of will become the chief one in the herd, or as "the stone that the builders rejected has become the chief one in the temple."

Would the blood of that grand old cow, "Eurotas," be in such demand except for her record of over 778 pounds a year? Who would ever have heard of "Mary Ann" if she did not excel all other cows in her great record of 653 pounds 14 $\frac{3}{4}$ ounces of butter in 217 days?

Would you, Mr. President, have paid the price you did for "Hazen's Bess" if she had had no butter record? I think not. Neither would my good friend Haselmann have sold her for a song, as it were, had he known "what might have been" in her as a butter maker.

And so we may breed and breed, buy and sell, and sell and buy again, and never know what kind of bargains, or worthless brutes, we have in our herds, unless a thorough and systematic test is given each and every animal. The day of guessing as to a butter record has happily gone by, and we hope it may never be in vogue again.

Some system of feeding and testing should be agreed upon and adopted by our Association, and it should be the aim of every member to give his animals a thorough test, and make report of the same to The Jersey Bulletin for publication. I expect to do so, and hope each one present will do the same; and if we go at in earnest, we will do each other, as breeders, more real good than in any other manner I can imagine.

Mr. Sylvester Johnson presented an essay, as follows:

AN ADDRESS BEFORE THE INDIANA JERSEY CATTLE BREEDERS' ASSOCIATION, JANUARY 29, 1884.

BY SYLVESTER JOHNSON, OF MARION COUNTY.

The subject assigned me for the present paper is expressed in these words:

"Care of milk and cream for the largest return in butter; quantity and quality considered."

Up to near the close of the last century it was supposed that butter was formed from the elements of milk in the process of churning. After the invention of the compound microscope, noted chemists detected globules of butter floating in the serum of the milk; but the true composition of milk, and the relation of the butter globules to the other constituents of that fluid, was first revealed in a course of lectures delivered by Sir Humphrey Davy, in 1803. While the composition of milk, as to the several ingredients it contains, is quite uniform, yet the proportions of these elements are varied by so many local circumstances that it is nearly impossible to establish any standard of pure milk. The milk of the cow always contains caseine, or cheesy matter; lactase, or milk sugar; and several salts, all dissolved in

water, in which float globules of butter, so small as to be seen only by a microscope of good magnifying power. But the proportion of these elements vary with the breeds of cows, and in the same breed, the length of time from calving, the temperature of the air, and the kind of food, will each and all affect the composition of the milk to a greater or less extent. As a mean result of a large number of analyses, under these varying circumstances, chemists have concurred generally in these figures:

Water	87.4 per cent.
Butter	4.0 per cent.
Sugar and soluble salts	5.0 per cent.
Caseine and insoluble salts	3.6 per cent.
	<hr/> 100.0

Caseine is insoluble in pure water, but a slight addition of soda or potash enables it to hold this substance in solution. The free soda in the water of milk performs this office, and holds the caseine completely dissolved till the formation of an acid neutralizes the alkali, when coagulation takes place from the separation of insoluble caseine. But our present topic is butter. This is a very complex oil, consisting of not less than six fatty acids, combined with glycerine. The largest part of this group of acids is margarine, which is the most stable and permanent element in the composition of butter. But, from its complicated character, butter is liable to decomposition, if it is exposed to air, and the more so if it is not absolutely free from foreign substances. Not merely the quantity, but the character and composition of butter is modified by the breed of cows and their food. The Ayrshire and Jersey cows furnish butter with a large per cent. of margarine, and consequently it is more solid at the same temperature than the butter of other breeds. If cows be fed on oil cake, the quantity of butter will be increased, but the margarine being diminished, the product lacks solidity and richness of taste. Starch and sugar are the elements of food out of which the vital forces of the cow are able to manufacture butter of the standard composition. But, even when food, rich in starch and sugar, is supplied, care must be taken that nothing that can communicate any peculiar taste, or odor, is suffered to be fed, even in small quantities. So sensitive is butter to such influences that even the odor of clover blossoms, or the peculiar taste of turnips, will often be transferred to the butter of cows permitted to have access to these, or similar kinds of food. Nor is this sensitiveness confined to the formative period of milk, but even after it is drawn from the cow, if it is exposed to odors, or kept in vessels not absolutely clean, it will absorb whatever offensive substance may come within its reach. If butter of the very best quality is the object, the cows must be fed on clean food, rich in starch and sugar, or on pasture grass free from noxious weeds, and the milk should be drawn with clean hands into clean vessels, with no impure surroundings, and kept in a dairy house in which nothing else is allowed to be stored.

But the per cent. of butter differs materially not only in the milk of different breeds of cows, but in different animals of the same breed, and in the same animals at different periods of their milking, and even in the milk of the same milking.

A cow, giving eight quarts of milk will vary the proportion of butter one-half between the first and the last quart drawn. We have given above, as the average composition of milk, four per cent. of butter, but we have reliable analysis of Jersey milk, yielding from eight to ten per cent. of butter.

CARE OF MILK.

The object of this care is to secure, as near as possible, all the globules of butter that are suspended. Looking to this end, two methods have been adopted. In Holland, and in some other parts of Europe, the whole milk is churned. This course is pursued in some of the dairies in Pennsylvania and New York, and where the churning is done by other than hand power, and the buttermilk can be profitably disposed of, it is a commendable course. Even in the best of milk we can seldom get more than eighty per cent. of the butter it contains in the cream, when by churning the whole milk from ninety to ninety-five per cent. may be obtained. But if the churning is done by hand, the additional labor will counterbalance the saving. On this and other accounts, butter is generally obtained, in this country, by churning cream. The globules of butter are covered with a very thin membrane of an albumoid substance, so that as they float, suspended in the milk, they have but little tendency to cohere when they come in contact with each other; but being slightly lighter than the fluid in which they are suspended, they slowly rise toward the surface, if the milk is perfectly at rest. In rising, the globules entangle a small amount of caseine and water holding sugar of milk in solution, and bring them to the surface with them. This is cream.

In the separation of cream from milk, the vessel in which the milk is placed and the temperature at which it is kept, are important considerations. Extravagant claims have been put in for the superior excellency of certain materials for the construction of milk vessels, as well as for the shape of the pans. As to the material, but two points are to be considered: 1st. It must be of such a nature that it can be kept scrupulously clean and free from any germs of fermentation. 2d. It must be a fairly good conductor of heat, that the milk may readily assume and maintain the temperature of the medium in which it is placed.

In the royal dairy near Windsor Castle, England, where the butter for the Queen's table is made, the milk is set in porcelain pans, placed in marble tanks. The walls, floor and ceiling are finished in porcelain tiles. Tin is generally used for the large pans in dairies, and there can be no objection to this material, if the milk is never permitted to become sour in them. In that event, if the tin is not absolutely pure, the lactic acid will be likely to corrode it. The chief objection to well-glazed earthen pans is, that after they have been in use for some time, the glazing is liable to become checkered with fine cracks, which retain substances that may be injurious to the milk, and that can not be removed. Of course, I speak of the common pottery pans in use in small farm dairies. In large establishments glazed pottery vessels can not be made large enough to be useful with economy. Glass has been introduced as a material for milk pans in some dairies, and it has many properties that admirably adapt it to the purpose. Its principal defect is its liability to breakage, in handling, and especially when being cleansed with water.

The proper depth of milk in pans when set for cream, is a matter of some importance. The butter globules rise slowly through the milk, so that under ordinary circumstances it will require twenty-four hours for those at the bottom of the pan to reach the surface, when the milk is six inches deep. This has been adopted generally as the maximum depth of dairy pans. Lately it has been claimed that pans twelve or fifteen inches, with a period of thirty-six hours for the cream to rise, gives a larger return of butter. This is probably true, if the milk can be kept perfectly sweet, but the first step in the direction of souring arrests the rising of the cream. But what is gained in the quantity of butter will be lost in quality. It is a well established fact that the finest butter is made from the first cream that rises, and many of the leading butter dairies of Europe divide the cream into two skimmings for first and second grades of butter. After the animal heat has left the milk, the envelopes covering the butter globules begin to thicken by accumulation of caseine from the milk, and much of this is carried over into the butter, and thus the quantity is increased. In the same way the Scotch method of heating the milk before setting it for cream, increases the yield from the churn; but caseine, thus acquired, greatly impairs the keeping quality of the butter. It is well to remember that no method of treating the milk, nor of churning, can in the least increase the quantity of butter contained in it. All that these can do is to obtain, as nearly as possible, all the butter in the milk. To this end, large pans from four to six inches deep, will, under favorable circumstances, bring nearly all the butter to the surface in thirty hours. If an extra fine quality of butter is desired, it will be well to skim at eighteen hours, and again at twelve hours later, for a lower grade of butter.

TEMPERATURE

Is an important consideration in the treatment of milk for butter. A temperature not lower than 55 nor higher than 65 degrees should be uniformly maintained in the dairy room from the time the milk is set for cream till the butter is taken to market. This is best accomplished by a stream of spring water passing through a shallow tank in which the pans are set. This tank should have narrow strips nailed on the bottom lengthwise, on which the pans will rest so as to allow the water to pass under them; or what will be better, small iron rods laid in the tank loosely, so that they can be removed when the tank is cleaned. This cleaning should be done frequently. After the cream is skimmed from the milk it should be kept in a deep vessel, exposing but a small surface to the air, and at the same temperature of the milk. If spring water is not convenient the best substitute for it is a good well and pump worked by a wind engine. This will generally furnish a supply of cold water with sufficient regularity to keep the water in the tank as low as 65°.

The dairy house should be well shaded to break the intensity of the summer heat. Good ventilation should be secured through ventilators, covered with fine wire gauze to exclude insects. Nothing but sweet milk and butter should be kept in the dairy room; and even the churning and working the butter should be done in another room. The practice of many butter-makers of making the dairy room a pantry where are kept pastry, cooked fruit and other victuals, or of placing milk in the cellar where are fruits and vegetables, can not be too strongly condemned.

CHURNING.

This process is simply a mechanical agitation of the cream so as to break the fine membrane covering the butter globules—permitting their contents to cohere in a mass. Writers on dairy matters generally affirm that no chemical action is involved in this process, but it is a well-known fact that if fresh cream, or even new milk be churned till butter is obtained, lactic acid will be found in the buttermilk, which indicates a chemical action on milk sugar present, but whether this is connected with the sudden appearance of free butter when it “breaks,” our present knowledge does not permit us to affirm.

A great number of churns have been patented—almost rivaling the fruitful field of washing machines. But that churn is best which most perfectly agitates the cream with the least expense of power, and which can most readily be kept clean. The churn that does the work most rapidly is not always the best churn. The rapid agitation required in rapid churning is likely to carry into the butter sufficient caseine to impair its keeping quality, if not its present flavor.

Experienced butter-makers regard half an hour as the least time of churning in which good butter can be obtained. Much has been said in favor of churning sweet cream, but the general practice of the best dairies now is to suffer the cream to commence thickening, which is evidence that it is forming lactic acid. If the temperature has been kept about 60°, and the cream vessel well cleaned from germs of fermentation, this condition will be reached in about forty-eight hours from the skimming, or three days from the milking. If, however, the cream shows acidity before that it should be churned at once. Sour cream should never be kept unchurned, if we expect to make good butter. The temperature of cream at the commencement of churning should not be above 60°, as it will rise four or five degrees by the agitation of churning. When begun it should not be suspended until finished. Our grandmothers had many superstitions about churning, a recital of which would be amusing to the present generation, but I have not room for them here.

When good butter is removed from the churn, it may yet be spoiled by improper handling. The table or vessel which first receives the butter from the churn should be thoroughly scalded with boiling water to destroy all germs of fermentation that may be concealed there, after which it should be well rinsed with clear cold water. The butter should be washed with pure cold water and worked with a wooden butter ladle or paddle till the water runs from it perfectly clear. It is next to be salted. In the dairies in which the celebrated Philadelphia butter is made, an ounce of fine salt to three pounds of butter is the rule. The Holland butter, so highly prized in London, has double that quantity of salt, and I am inclined to the opinion that the latter amount is about the correct one. The salt must be fine in grain and absolutely free from impurities, and must be well mixed with the butter.

The following resolution was offered by Mr. Theo. P. Haughey:

Resolved, That a committee of three be appointed by the President to select names of expert judges, and report the same to this meeting, and when approved, these names shall be referred to the Secretary of the State Board of Agriculture,

from which to select an expert judge to make the awards upon Jersey cattle at the coming State Fair.

The resolution was unanimously adopted, and the President appointed Theo. P. Haughey, Amos Garretson and Sylvester Johnson.

Upon motion, the meeting adjourned to meet the following day at 9 A. M.

WEDNESDAY, January 30, 1884.

Met in pursuance of adjournment. In the absence of President Jackson, and upon motion by Dr. Levi Ritter, Sylvester Johnson, of Irvington, was called to the chair.

The following names were presented for membership, and elected by a unanimous vote: J. W. Sliger, Richmond; D. H. Jenkins, Indianapolis; J. A. Guantt, Marion; Elisha Howland, Indianapolis.

Upon motion to proceed to the reading of essays, Mr. Amos Garretson was requested to read, and presented the following:

WEANING AND RAISING OF CALVES.

BY A. GARRETSON, OF HENRY COUNTY.

This subject was assigned me for this meeting, which I have endeavored to put forth according to my ability and experience.

Calves should suck their dams from two to four weeks, letting them have the first of the milk from all the teats, as it is not so rich as the last, therefore not so liable to sour.

For the first three or four days they should suck three or four times per day; after that twice a day is sufficient. When the calf is taken from the cow, it should have half new and half skim milk, always given at a temperature of blood heat; in a week or ten days gradually decrease the *new* milk and increase the skim milk, until you have it all skim milk.

The most successful plan I have found in the way of teaching them to drink, is to let them miss a feed, and by being very hungry at the next feed, they will suck the finger eagerly; they will follow the hand into the pail of milk. Gradually lower the hand until the calf's nose is immersed. They will have to raise their heads for breath, when they immediately hunt for the finger again. By continuing the same they will very soon learn to drink without the fingers. I have frequently had them drink the first feed and have no further trouble. Some calves are very stubborn, and require much perseverance.

They should have hay by them almost from birth; they will chew at it when only a few days old. They should be taught to eat oats, bran and shelled corn as young as possible. I frequently open their mouths and fill them with bran; they get the taste of it and soon learn to eat it.

The feeder should notice the condition of the calves' bowels every time they feed. If there is a tendency to scouring, feed less milk and *hotter*; if constipated, give more milk and *cooler*.

Should the calf take the scours, give one-half the usual amount (or less), as hot as the calf will drink it; add to it two well-beaten raw eggs and a heaping teaspoonful of pulverized charcoal; a few feeds this way usually brings them all right. If the case is a bad one, give less milk, more raw eggs, more charcoal, and occasionally give prepared chalk instead of charcoal. I think it a good plan to give charcoal in their feed occasionally as a preventive. It is sometimes an advantage in bad cases to give a physic of castor or olive oil, followed by their feed of milk, eggs, and charcoal. If milk is plenty, continue to feed it until calves are five or six months old. The longer you feed skim milk the better. The more rough, bulky food the calf gets the better; never allowing them to get fat. For grain feed, shelled corn, bran and oats, given in sufficient quantity to keep them in good growing condition. Early cut, well-cured clover hay is one of the best rough feeds for the calf, as well as the milch cow. Corn fodder, well cured and housed early, is very good. They occasionally relish a feed of clean, bright wheat straw. The cow and calf, like everything else, like a change of feed.

I raise a great many roots (beets and carrots) for the milch cows in winter, and get well paid for it in milk and butter. The young stock are very fond of beets they are a good appetizer, regulate the bowels, and help to keep them in a good healthy condition. The kind of beets I raise are the "Silesian Sugar;" they are much sweeter than the "Mangel-wurzel." It is said that in Germany one pound of sugar is obtained from eleven pounds of "Silesian Sugar."

I have found it to be the most profitable time of the year to have cows calve in the fall. Then we have fresh cows for the winter, when butter is good price, and when grass comes in the spring they seem almost like fresh cows. When flies are bad and weather hot, last of July and August, the cows are turned dry, preparatory to calving again in the fall.

It is also better for the calf to come in the fall; it is then very necessary to care well for it through the winter. By spring, when grass comes, it is ready to take care of itself, if on good pasture, being then five or six months old. The calf that comes in the spring needs careful attention all summer, then comes winter feeding, so it requires attention the whole year; while the calf that comes in the fall requires attention the first six months, takes care of itself the next six months, if provided with good pasture.

Dr. D. W. Voyles, of Crandall, Harrison county, being necessarily absent, the Secretary read his paper as follows:

IS INBREEDING A CAUSE OF ABORTION?

BY D. W. VOYLES, OF CRANDALL, HARRISON COUNTY.

The above question has been submitted to me by the Secretary of this convention, with the request that I make it the subject of a communication to be read on this occasion.

In order to give an intelligent opinion upon this question it becomes necessary to consider, briefly, the whole subject of inbreeding; what constitutes it, and what are the good and the evil results that may be reasonably expected from its practice.

Professional breeders of improved domestic animals term the coupling of animals of kindred blood, *interbreeding*, and the repetition of the practice, in a direct line of relationship, *inbreeding*.

The first error that we encounter in the consideration of this subject, is the prevailing opinion that the system originated with the professional breeders of improved animals, when in fact, instead of being an innovation it is nature's primitive way, and the only thing the breeder has attempted is to direct the system by intelligence to the accomplishment of certain desired ends. The most closely inbred animals in existence are those found in a wild state of nature, entirely beyond the range of man's controlling influence; next after these, are the native scrub-races, under man's control, but not interfered with in this regard; and lastly, the *least inbred*, the improved breeds, where the breeding has been regulated by an intelligent regard to the improved condition of the animal.

What is true of the domestic animals is equally true of the human race. Inter-marriage indulged in by the crowned heads of the Old World for the perpetuation of ruling dynasties, is not so frequent as during the age of the Patriarchs, nor yet so frequent with these as it must have been from necessity in the primitive days of the human race, and still we are taught to believe that during these countless years both man and animal have steadily increased in development. It may be claimed upon the pretended longevity of human life, during the age of the Patriarchs, that such is not the case; that rather a retrogression has occurred; but there is nothing in nature that sustains a belief in the venerable age of Methuselah, and if so, it could be an argument in favor of inter-marriage, or inbreeding, since the human family at that time was more of a kindred blood than now.

The breeder of improved domestic animals accepts nature as he finds her, and armed with a knowledge of some of the laws that govern her mysterious methods, attempts, through their application, to shape and fashion after his own liking. He has learned that "like begets like, or the likeness of an ancestor," with a tolerably uniform regularity, and that *unlikes produce the medium of their difference*, with about the same degree of uniformity; he has learned that while the coupling of animals

of equal desirable points of excellence, improves and intensifies the good qualities, the coupling of animals of common bad points, also multiplies and intensifies these defects,, whether of form, of constitution, or tendency to disease.

In untamed nature, where the system prevails without limit, the evil tendencies are guarded against by the "law of battles." The strong and healthful males fight off and destroy the feeble and sickly ones, and by becoming the conquering sires, insure to the descendants of their race, *at least one robust and healthy parent.*

Inbreeding, as directed by man's intelligence, does not guard so successfully against feeble constitution and diseased tendency, because constitutional vigor is often sacrificed for beauty of form or fashion in pedigree, when, if left to the decision of the "law of battles," the \$5,000 sire would be placed *hors de combat* by his more vigorous, but ungainly, \$100 cousin. The same law governs alike the good and the evil tendencies of the system of inbreeding. It multiplies the good and desirable qualities when belonging in common to both animals—it does precisely the same for the bad points and tendencies, that mutually exist in the animals coupled.

One of the generally accepted evils of inbreeding is diminution in size and smallness of bone. I do not believe this due to inbreeding to the extent generally believed, but in a greater degree due to other causes. I think it is true as a general proposition, that animals extremely close inbred, have been kept upon the same farm and fed upon the same products year after year, until, like vegetables, they become dwarfed or "run out" through monotony of food and climate. This may be a "barren ideality," but I am inclined to accept it both from analogous reasoning and from a limited observation. So fully am I persuaded of its truthfulness, that I could not regard the coupling of a full brother and sister, separated at infancy, the one raised upon the soil and in the climate of the Island of Jersey, and the other in the United States, as an act of inbreeding, *in effect*, as close as the coupling of a pair of third or fourth cousins, that have been raised upon the same farm where their ancestors had been bred and raised for several generations before them. While it is unquestionably true that there is an inherent power, or vital principle, in the original unit of animal life, that builds and fashions out of the elements upon which it feeds, *after its own kind*, it is equally true that its success in the attainment of the greatest possible excellence *for its kind* depends largely upon the nature and source of its sustenance during both the embryonic and post-partem stages of its development.

This vital principle is understood by gardeners and florists in its application to vegetable life, and that it is equally true in its application to the animal kingdom, I entertain no doubt. Hence, the second law, "good feeding is the equivalent of good breeding."

Assuming that these general propositions are true in their application to the subject of inbreeding, I can not perceive how it can become *per se* either the remote or exciting cause of abortion. Admitting that when conducted under the superintendence of bad judgment, and through the coupling of animals of enfeebled constitutions or of diseased tendencies, becomes deteriorating, and remotely the cause of abortion, among other disorders; still, the same results would follow like causes in animals of the most remote kinship.

If it is true that among the wild animals inbreeding prevails to the greatest extent, and that abortion is one of the evil effects of the system, then it is among these animals that abortion should occur most frequently. Such is not the case, but the contrary is true.

Both the wild and domestic scrub races are more prolific than the less inbred, improved breeds—due largely, no doubt, to the vigorous constitutions which they acquire through that constant exercise they find in their wandering in search of food. On the contrary, abortion is most prevalent among that class of improved breeds that are kept most closely confined. Want of exercise, when coupled with full feeding, leads to indigestion, and through that disorder the constitution of the animal becomes enfeebled and a state of nervous debility induced that becomes one of the strongest predisposing causes of abortion.

Upon the subject of epidemic, or rather endemic, abortion as it prevails in some herds, I have no practical information, derived from experience and observation, but from such sources of information as I have at my command I learn that where a farm is infected by some local cause or contagion, producing abortions quite frequently, and a new and healthful animal is taken upon it, the animal soon comes under the malign influence, and that the most effectual way to eradicate the disease is to remove the animals to a new and healthy locality. If inbreeding, in such cases, was the cause of the disorder, removal as a sanitary measure could be of no value, since removal can in no way change the character of the breeding of the animal removed. I do not believe, therefore, that inbreeding, when intelligently conducted, becomes a cause of abortion, and when misdirected, I believe the same errors would be followed with similar results, in a system of outbreeding. It will be observed that I arrive at this opinion mainly through a process of reasoning, and that both the premises and the reasoning are open to criticism. I assume no authority upon the subject, and have hastily and without reflection penned these thoughts, in the hope that through the discussion of the subject that they may produce, will come valuable information to the several members of the convention, as it is through an interchange of ideas and opinions that we advance in intellectual development. Upon the merit of the opinion given I therefore invite the unsparing criticism of the convention.

As this question can only be settled by statistical information, showing that among breeders and dairymen abortions do or do not occur more frequently in inbred animals than in others less deeply inbred, under the same conditions and circumstances, I respectfully suggest that the consideration of the subject be continued during the coming year, and that a committee be appointed to gather such information as can be obtained from all available sources, and to report at the next annual meeting of the convention.

After an interesting discussion upon the causes of abortion, the Committee on Expert Judges submitted the following report:

Your committee, appointed to present names to this meeting from which to select an expert to pass upon the merits of Jersey cattle at the forthcoming State Fair, beg leave to report the following for consideration: We recommend that the Secretary of the State Board of Agriculture be requested to open correspondence with the following named persons, in the order named, with the view of obtaining

the consent of one to act as expert. Report received and committee continued, with the request that the names be kept private.

Dr. Ritter moved to proceed with the election of officers, resulting in the election of Theo. P. Haughey, President; George Jackson, Vice President. Directors to fill vacancies occasioned by expiration of term, A. Garrettson, Pendleton; Jos. C. Ratliff, Richmond; Sylvester Johnson, Irvington, and Samuel McKeen, Terre Haute, were elected to fill the unexpired term of Theo. P. Haughey, made vacant by his election to the Presidency.

Upon motion, adjourned.

Whereupon the Board of Managers, consisting of W. J. Hasselman, Indianapolis; Samuel McKeen, Terre Haute; Colonel S. F. Gray, Indianapolis; J. D. Conner, Wabash, term expiring in January, 1885, and Amos Garrettson, Pendleton; Jos. C. Ratliff, Richmond; Sylvester Johnson, Irvington, term expiring January, 1886, held a meeting, President Theo. P. Haughey presiding. Upon motion Amos Garrettson and Colonel S. F. Gray were appointed Auditing Committee; Thomas A. Lloyd, Indianapolis, appointed Secretary, and W. E. Fenton, Indianapolis, Treasurer.

Adjourned.

INDIANA WOOL GROWERS' ASSOCIATION.

PROCEEDINGS OF MAY MEETING, 1883.

ROOMS OF STATE BOARD OF AGRICULTURE.

This Association met in semi-annual session Thursday, May 30, 1883, with President Fielding Beeler in the chair.

On motion, W. J. Carter, of Westfield, Ind., was appointed to report the proceedings of the meeting.

The minutes of the previous meeting were read and approved.

The following paper was then read :

ARE FULL BLOODS OR CROSS-BREEDS THE BEST MUTTON SHEEP FOR THE COMMON FARMER?

BY HON. JOHN E. M'GAUGHEY, OF GAUDELETTE, MARION COUNTY.

The sheep raiser realizes his largest returns from mutton, rather than wool; therefore, his object should be to obtain the largest sheep with the best and most palatable flesh. Usually we eat pork, for no other reason than that pork is extensively raised and easily obtained. Mutton is said to be the most healthful of meats and it is certainly a matter of wonder that it is not more generally in use. Our best mutton is not sold in Western markets but is shipped East for better prices. We should have a market near home for good mutton, as well as in Eastern States. What is the cause for the low valuation placed upon mutton in the home markets, and how shall we remedy the evil? The cause is, we raise too many poor sheep. Butchers buy an inferior article at a poor price, and the consumers do not know what really good mutton is. The remedy is, stop raising these inferior sheep and replace them by good ones.

For mutton, I think the best plan is to raise a mixed breed of sheep. A pure bred animal requires too much care to keep up the purity. A grand improvement could be made if special attention were given to special animals. Never mind about the purity of the breed. If you have a fine mutton sheep he is the one to breed from, by all means. Pure breeds should be raised by those with a liking for the occupation. It is enough for the general farmer to raise the best cross he can find. I am not prepared to say what cross is the best. Experience and observation will teach.

DISCUSSION.

S. S. Richie, of Ohio—If I remember right, we had quite a lively discussion on this subject last winter. The Governor seemed to be in trouble about getting good mutton. I like good things to eat myself and felt compassion for him. I told him I would bring him a quarter of mutton when I came to this meeting. I left it at his office awhile ago. I had some of it for my breakfast this morning; it was the best I ever tasted. It was delightful, tender and sweet as any chicken. I would like the farmers to try the cross of the Southdown. There is not that mutton smell as on the Leicester or Merino. It was about seven-eighths' blood Southdown. It is a breed of sheep that will make its impress on any other sheep; they will show the black or smutty face and legs to a certain extent, and the meat always commands a better price on the market than that of any other breed. It costs but little to get a lamb of this kind to improve your stock. I want the market of the world supplied with this kind of mutton.

Mr. McDaniel, of Rush county—I believe Brother Richie is right as to the claims of the Southdown. If the Governor waits until to-morrow to test the qualities of the mutton he can not tell so well. There is no doubt but it is the sweetest mutton we have in the land. The manner in which it is butchered and cooked makes a marked difference; the length of time it has been killed has an influence. It should be hung up alive, throat cut while hanging, and an incision made in the belly to let the odor out. This is the secret of butchering the finest mutton in the world. The Governor should have had his mutton for dinner to-day to fairly test it.

W. W. Thrasher—I think the paper a good one, especially so, coming from a young man like Mr. McGaughey.

Mr. Richie—The Southdowns are the best nurses that I know of, they raise more lambs and suckle the best.

The following essay, prepared by Dr. N. D. Gaddy, of Jennings county, was read by Cyrus T. Nixon:

PRACTICAL SHEEP BREEDING.

BY N. D. GADDY, M. D., OF JENNINGS COUNTY.

The question most often asked concerning sheep is, what is the best breed of sheep for the farmer?

The question itself implies, probably, good qualities in all breeds. Some individuals seem to be satisfied with sheep in the positive degree, good as to quality, while others are content with sheep of a better quality, but a larger majority of persons who possess sheep at all would like to have the best sheep in the world, or the best which it is possible to be bred, if this could be done without much expense, care or labor. When the question is answered to their satisfaction, many individuals are unwilling to make the effort which they learn is necessary to be used to attain that degree of perfection which they so much desire in the sheep.

Many persons are hard to satisfy as to the sheep they want, for it is difficult to conjecture a sheep representing the good qualities only of all sheep, and possessing nothing undesirable in size, condition, disposition, constitution, length of wool, quality and quantity of same, as well as everything else peculiar to the sheep. If such a breed was built up it could scarcely be maintained even by the expert, because of the law of variation or reversion, which is ever ready to assert itself upon the least provocation or opportunity.

How many flocks of the various breeds of sheep now existing, that present even a desirable uniformity in all the points. In size, they may not vary, or again, they may present a great difference. While they may be uniform in one or more respects, they widely differ in others.

The expert breeder is ever on the alert to suppress a departure from the standard of excellence in the way of redundancy of horn, or length of a particular bone; or, on the contrary, he sees the necessity for greater development of lung and heart room, to insure additional vitality to the animal. He learns that his success as a breeder depends largely upon his ability to detect a defect, and to supply a want of excellence. He often finds animals so worthless that he finds it to his interest to discard them as breeders, though they may have cost much money. The mistake of coupling a valuable ewe with a worthless ram, wastes a year's time, exhausts the vitality and strength of the ewe, and probably impairs her breeding qualities ever afterwards. If the loss be so much in the case of one ewe, how incalculably large is the loss and damage resulting from the use of a poor ram upon a whole flock?

Blunders are sometimes committed not by using a ram which is himself not a good animal as a specimen of the ovine species, but because his good qualities are not fixed so as to give him prepotency as a sire to transmit the qualities which he

possesses, and arranged as they are in him arranged. Defects, sometimes amounting to deformities in the progeny, result from coupling good animals, regardless of their consanguinity. The known law of like producing like, tempts breeders to practice in-and-inbreeding, to a reckless extent. They sometimes notice and rectify their mistakes, but are very careful not to divulge them. They mercilessly permit their fellow-breeders also to learn by dear experience. The result is, that the science of breeding is poorly understood by the masses, and well understood by very few. Had we a voluminous record of faithfully portrayed mistakes in breeding, to contrast with a large record of successes, the advancement of the studious beginner would be smooth and rapid, and the good resulting to himself and to the commonwealth would be soon sensibly felt or noted.

Few men delight in contemplating their mistakes or errors. Indeed, they even dislike to remember them themselves, and dread for others to discover them, and these facts are sufficient to preclude their permanent record. Bakewell left a record of his success in the superiority of the animal which he bred. Exactly how it was done we do not know. That he made mistakes is unquestionable, but what they were, we are left in doubt, but that he had the acumen not to repeat them we will readily concede to him. We may draw some valuable hints from his practice of retaining all his good rams, and selling none. This gave him ample material to draw from. Notwithstanding they may have possessed an attenuated degree of consanguinity, this would promote uniformity without excessive inbreeding, which would develop deformity, or perhaps monstrosity. Some breeders emphasize selection in breeding, by which we infer the rule to be to eliminate from the herd the worst animals, and to breed from the best. This is good as far as it goes, but the best selection from a small number of rams may not be good for the coupling with a given ewe because of certain peculiarities or characteristics that would prevent their "nicheing" well together. From a large number of rams a selection might readily be made that would have the desired result. No doubt this was the secret of Bakewell's success, viz.: The knowledge of what was desirable, the sagacity of making proper selection, and the abundant material to select from. The exact number of rams necessary to be kept is difficult to fix. In some cases one might be sufficient for fifty ewes, while I could imagine a condition of a flock of fifty ewes in which fifty rams might be very profitably used. It might be true, also, that a judicious selection of five hundred or more ewes could be added to the herd and used with the best results. One other thought in this connection, and that is it will be useless to keep a large number of rams, and then use the one most convenient regardless of his individuality being studied and compared with that of the ewe or ewes bred to him.

The breeder should familiarize himself with all the "points," so as to be able to scale them readily and with accuracy, not only of one breed, but of all breeds in reach of him. The more he studies all breeds the better he can handle any one breed. This knowledge may enable him to decide for himself the starting question, which was, "What is the best breed of sheep for the farmer?" At least he may be able to decide what is the best breed for him to use, which will be a step in the right direction. One important rule should be observed, and that is to use a thoroughbred of whatever breed a ram may be selected from. I do not mean

by this that it will always be necessary to use a ram, the pedigree of whose dam shall trace to an imported ewe, because I believe that a number of crosses may fix the characteristics of the sire as indelibly as though a very remote ancestral dam had not been a mongrel.

Just how many crosses it is safe to rest with is difficult to determine. After the most judicious selection from animals possessing very desirable and symmetrical configuration, for a period of fifty years, a defect has suddenly, by reversion, presented itself in all its ancestral hideousness.

After skipping over several generations a *fac simile* of what occurred in a dam fifty or more years ago, is presented with photographic correctness. This fact evinces something to encourage as well as to discourage us. If we use animals with a long pedigree we may occasionally be fortunate enough to breed animals similar to their ancestral show-animals, be they either gr-gr, gr-gr sire or dam, or more remote even than that.

Much has been said about cross-breeds especially for producing butcher lambs and sheep. For the general farmer of this country who can obtain but few animals of any of the established breeds, cross-breeds in great numbers are difficult to produce. If inbred, the tendency to reversion is very strong and will disappoint the breeder.

Mixed breeds have a more favorable history. Three or more breeds should be used to make up a mixed breed. By mixed breeds for the general farmer I mean building up always with thoroughbred rams selected from several breeds, basing the common sheep as a foundation. The Merino, the Southdown, with Cotswold top crosses make a hardy and prolific sheep, with which to make up the field flock, of large numbers.

With this kind of sheep he can readily change the quality of his wool or carcass to suit the whimsical demands of the market. He may, if he choose, his circumstances admitting it, keep in addition to his large field flock, a smaller number of thoroughbreds of one or more breeds from which to select rams for his own use, and to hire out to his neighbors. In this way he may keep a great many rams without necessarily having them all on his farm during a time when they would be in his way. This part of the subject I can only introduce, for it would require a lengthy paper to properly discuss the advantages and disadvantages connected with this method of using and caring for rams on a large scale.

In grading up or mixing for a field herd, a rapid and profitable way is for the farmer to select, say fifty common ewes, which should be bred to a thoroughbred ram or rams, of the chosen breed. The ewes should be well cared for, while kept on the farm. The ewe lambs should be docked, and the ram lambs castrated or not, at the option of the owner, for they should all be sold at or before weaning time. With the buck lambs, or later in the season, culls among the ewes should be disposed of. The second year, when the ewe lambs are old enough to be bred, more severe culling may be indulged in for two reasons. First, to get rid of old or inferior ewes, and secondly, to limit the number of sheep to what the farm may profitably carry. Every summer and autumn all the ram lambs should be sold, and as many old ewes sold, too, as there are yearling ewes to be bred. In a few years all the common ewes will be gone with little loss, by death, and in their stead half-

breeds and three-quarter bloods, showing a large increase in value and beauty to the gratification of the farmer, will be retained, upon which to build higher grades. By studying the good and bad qualities of his grades, he learns that he may properly use rams selected from two or three breeds to continue his process of grading.

After a few years of experimenting in this way he may safely use rams that have been properly and sufficiently mixed, upon this mixed herd, and then reverse, if necessary, again, to the thoroughbred to correct up with.

Others again may do better to stick to the thoroughbred first selected, to grade with, and continue to grade with that breed which will give greater uniformity than to resort to the use of rams differing so radically as some do, especially the long and the short wool breeds.

The key to success in breeding for beauty and profit is to use thoroughbred rams into which have thoroughly been bred such qualities, attributes and properties as are desirable to be transmitted or propagated. A low grade will be unreliable; a high grade can not be depended upon; many so-called thoroughbreds will disappoint you. He must possess the desired qualities as an inheritance from both sides through a long line of ancestors. If I were to take the liberty of emphasizing a few conditions as being indispensable to a good ram, I should say he must have an ample chest, be up-headed, with a strong, vigorous and active make-up. These qualities should obtain in any and all breeds of sheep. I do not mean by activity a morbid restlessness which would be incompatible with the rapid laying on of fat, but a latent activity, which, when called out would be equal to the emergency when backed by the necessary muscular vigor and constitutional endurance. A ram properly selected will scarcely ever fail to give some profit, and will probably afford some amusement, if not entire satisfaction in almost every experiment tried. A full and complete record should be kept in a book for the purpose, of every success and failure of each special influence of sire and dam as far as may be understood, in giving bone, muscle or fattening susceptibilities, and noting what part of the body the wool is influenced as to length, size of fibre, and number of fibres to the square inch by sire, and what part by the dam.

Then by frequently referring to his private record of facts, and studying them in connection with the individual characteristics of his flock, in addition to the many valuable articles which he may read on the subject, will greatly aid him in arriving at just conclusions in practical sheep breeding. In his private record there will be no inducement to cause him to record anything to deceive himself, and in his advancement he may rise so far above selfish feeling and financial motive as to be magnanimous enough to spread his record open before the world, regardless of the persecutions and jeers of his inferiors, or more piercing criticisms of his equals or superiors.

Then some enterprising editor may possess ingenuity sufficient to induce breeders to forward him abstracts of their records to be by him compiled into a Book of Errors in Sheep Breeding. Such a book would find ready sale, for while it is true that a man would not read a book upon the correct principles of breeding if given to him, his curiosity would prompt him to walk a mile through the mud and pay two dollars to learn something bad and sensational about that or anything else.

The records kept by the breeder should not be limited to notes concerning the

breeding qualities and powers of the animals considered, but should record all facts and events connected with the business of sheep raising and fattening, and sales of his sheep, together with comments on the quality of wool, etc.

The care of lambs from their birth to the age of six months deserves much study by the breeder. It makes no difference how well bred the lamb may be, whether it cost one or fifty dollars, it can not be healthy and make rapid growth, and attain the desired development without proper care, food and water.

The sudden change from the care of its mother, and nourishing and easily digested milk which she gave it, to the unsheltered pastures, perhaps with here and there a pool of water or a sluggish stream, whose margins present numerous blades of grass to which cling larva of entozoa, awaiting a chance to get into their stomachs, thence into the blood, the liver and the brain of the lambs, and in addition to the scarcity of pure water, a scanty supply of digestible food, will soon bring destruction to their lives.

Many farmers lose half of their lambs in August, September and October, from the causes alluded to, and then worry themselves about their "bad luck." Lambs, when removed from the ewes should be put in a pasture or meadow on which no sheep have been during the year. They should be fed twice a day on oats and corn, with a little oil meal. They should be supplied with plenty of cool and good water, and have access to shade during the hot part of the day. These shady resorts should be kept clean by frequent cleansing or bedding. If this can not be conveniently done they should be changed every few days to clean pastures, and the supply of grain and water kept up. Salt should be kept in boxes for the purpose, to which the lambs may go at will. They like a very little salt once or twice a day, which has a very healthful influence upon them in various ways that we will not now discuss.

While we would not recommend undue forcing the growth and development of young animals, it is understood by the experienced that good feeding gives expansion to the ribs, favoring beauty of form, and at the same time giving greater room for the respiratory and digestive organs; a good development of which is a necessity to sound health and long life of the animal. Generous feeding, but not over-feeding brings the best results. Without food and water, good in quality and sufficient in quantity, improved animals will become themselves inclined to degenerate and transmit to their progeny an increased tendency, under the same treatment, to degenerate into the original undesirable types, or else develop disease of a wasting or exhausting character, which will sooner or later prove destructive in its results.

On the contrary, with proper treatment, any tendency to increased development or to exalted excellence in quality, may be enhanced and its hereditary transmission rendered more probable.

Desirable qualities, if existing in both male and female, backed by a long line of ancestral similar qualities, possess a double power of hereditary transmission, if stimulated by proper nourishment, pure air, good water, judicious care, and sufficient shelter. Some degree of kindredship may render the transmission still more certain without necessarily entailing a diminished strength of constitution, or inducing the development of disease, because of the existing remote affinity. Inces-

tuous breeding is apt to bring bad results. This obtains some times when both male and female are to all appearances healthy.

It has been stated by one writer, that the bad effect resulted from coupling animals of unequal ages, or the old with the young, and not from close inbreeding.

This does not agree with my observation. I have never seen a lamb, the produce of sire and daughter do well, while I have seen fair results from pairing a ram with his grand daughter, notwithstanding the former was nine, and the latter three years of age.

One more remove would doubtless have been attended with better results. A ewe with lamb by her son is apt to miscarry, while a grandson would do better, and a great grandson far better, notwithstanding the disparity of age, provided both were vigorous and healthy. Half brother and sister do tolerably well together—if only one side, there is kindred blood. Cousins (one side) will probably do better if both are free from constitutional disease. Farther removes will probably be attended with better results. Notwithstanding, inbreeding, where properly instituted, increases uniformity in the flock, and increases the fattening susceptibilities of the animal so bred; yet, it diminishes its brain, and consequently renders it less capable of caring for itself and for its young, and thus entails upon the flock-master more care and upon the shepherd more tender handling of the sheep submitted to his keeping.

It has been held by some breeders that an inbred sire is more prepotent than others, although pure bred.

The reason of this conclusion is because his get is more uniformly impressed with some peculiarity, which, if critically examined, will not always be pronounced a superiority by the expert, but which, by the casual or prejudiced observer, may be noted with admiration, and considered as a mark of excellence. The produce of the out-crossed sire may transmit as great an increase of wool and mutton, yet presenting a not unpleasing dissimilarity pervading the general uniformity. While this may be unobjectionable in some instances, the union of two widely distinguished families of the same breed will produce such an unequal development of the different parts of the animal produced, as to be unsymmetrical, and consequently undesirable as a sire or dam. It does not necessarily follow that such a bred sire does not possess a prepotency to transmit certain qualities by which his get could be unerringly pointed out by one familiar to them. But the question, whether those qualities would be desirable might be more easily asked than answered? His prepotency in transmitting good fore quarters with diminutive hind quarters, or *vice versa*, might be indisputable. His fleece might be characterised by thickness or length upon a given part of the progeny, with shortness and scarcity upon other parts where uniformity of fleece would be the most desirable acquisition. Hence, a similarity of desirable qualities existing in two families, not akin, will doubtless produce when coupled together as impressive sires to transmit those qualities as the produce of individuals of the same family. The progeny of the former would probably be more robust and vigorous, and less liable to contract disease.

If this proposition be true, that line of breeding is most commendable, but the trouble is to find families not related in the same breed, even that present a very

great uniformity in both wool and carcass. This difficulty existing, is offered as an excuse for in-and-in-breeding at the peril of deterioration of the vital organs and ruin of the constitution of the sheep. The result is, that defeat and disappointment soon follows in this direction, and the novice turns in disgust from the breed itself, without stopping to question his own erroneous, or perhaps, reckless management. The best rule, to follow, in making experiments in new fields, is to make haste slowly, thus giving himself the benefit of the doubt. I knew a man to eclipse the brilliancy of the reputation of his flock by a single experiment made to follow the *ignis fatuus* of fashion. Hence, it is essentially important to study the physiology or science of breeding, and after acquiring the necessary knowledge how to proceed, or manage, it will be equally important in order to be successful, to have the "pluck," regardless of fashion, to fearlessly and persistently execute that which he approvingly knows.

DISCUSSION.

Mr. Richie. This is certainly a valuable paper. I have been instructed in hearing it myself; it confirms my experience, especially in one particular, in crossing and keeping up thoroughbreds. I once went to New York and bought a few ewes, paying \$40 apiece. I took them to a friend of mine, fifteen miles away, to breed to his blooded buck, imported from Canada. I think I never had a meaner sheep on my place than this cross. The uncertainty of breeding sheep is greater than any other stock I have had, either horses or cattle.

Dr. Stevenson. One view that seems to be presented by the consideration of the paper I would like to hear investigated. My own opinion upon the question will differ widely from the opinion that prevails in the county; that is this, does the mother or sire produce the greatest impress on the posterity? I sometimes think it would be a good thing if every one would express just what he thought, and not follow the opinion of others, and we would get better results, and obtain more wisdom in the world. Some men have good opinions and are afraid to express them. My opinion is, the mother makes the greatest impress. I think we see this in the human family; man is but an animal, and subject to the laws that govern animals generally. I think it will be acknowledged among the great men of this and all other countries, that weakly married women never produce good children. When you find one that is, the mother makes the man. It is true with all our animals. We may have good animals, yet we are always running after bulls and rams, and paying big prices for them. Thirty years ago this year, I purchased a couple of heifers, both good milkers, but possessed of qualities different from each other. One of them was very obstinate in being driven, while the other was the reverse; the one that was obstinate had a fine bag, but hard to milk; the other was easy, and wasted her milk. I continued breeding these cows; the progeny of one milked hard, and the other easy; the first qualities of the mother continued to the last. From thirty years ago, they have transmitted that to their posterity down to the present day. I do not know how many crosses there were. I think that idea is confirmed by the laws of physiology; that the sire has nothing to produce only at the time when the cow is pregnant. The mother's blood goes into it, and makes it until birth. Physiology will teach us that the mother is the real source transmitted to the calf from

generation to generation. If we want a good flock of sheep, we should not depend altogether on the ram. People too often in trying to build up their herds, try to find a high-priced bull and common cow, and think the bull will carry out the impress. These cows will carry it on for thirty years.

Mr. Haworth. In regard to the first progeny that the cow may have, will she retain that first impregnation?

Dr. Stevenson. I can not say anything on that subject from personal experience. Jacob set up striped sticks and his sheep brought striped lambs. Some say in breeding a mare to the jack that their future colts would have a stripe across the shoulders. I do not know whether it is so or not. If it is so, the mother surely makes the impress through a nervous impress, and so makes it through the blood.

Mr. Haworth. A man in England bred a celebrated mare to a zebra, and ever after she brought striped colts.

Prof. Garland, of Springfield, Ill. I have recollections in a certain direction confirming the statement of Dr. Stevenson. He refers to the disposition of the mother being transmitted, and illustrated by reference to the human family. This needs some qualifications; as to those great men who have had good mothers we should inscribe a portion of that mind and superiority to the after influence. The influence and education that he gets from the mother has much to do with the perfect man. I think the Doctor needs a qualification in that direction as concerns the human family.

Mr. Mathews. I have had some experience in cross-breeding which is just the reverse of Dr. Stevenson's. I do not think that breeding to striped jacks will cause marks to be carried down to future posterity. I have been in the habit of crossing my sheep. I have seen Cotswolds ewes put to Merino bucks, and the lambs take after the buck, and so with the Cotswold buck. I can go into my flock and pick out every one that was sired by a Merino buck, and also the Cotswold.

Mr. Sunman. I have taken thoroughbred Cotswold ewes and Merino bucks and almost invariably the ewe lambs had longer and coarser wool than the ram, the lambs took more after the sire than after the dam.

Mr. Harkless. I have bred thoroughbred Cotswold to three different rams. I can go in my flock and pick them out that belong to each ram. One had wool growing on his face and all his lambs had wool growing on their faces.

Prof. Garland. A great many breeders have found that in coupling for cross-breeding that the sire marks the external and fleece of the lamb, while the mother gives character to the internal and flesh. This theory has many followers.

C. A. Howland. I commenced five or six years ago with the common sheep crossed with the Southdown, and then with the Shropshire. I then got a thoroughbred Cotswold buck, and persons passing my farm would say: "You are raising Cotswolds altogether?" They have taken more of the appearance of the Cotswold, because they had a Cotswold buck. There has been only one cross with the Cotswold; they are the most intelligent flock of sheep I ever had.

Mr. Richie. How about the color of the feet, has that disappeared in one generation?

Mr. Howland. No, sir. The buck was a thoroughbred, for his face was smutty or gray.

Mr. Henley. I attribute this strong impress to the male. In selecting the males we have been more careful. The male having been bred by pure strain they make a strong impress, and we must attribute it to that fact.

Prof. A. M. Garland, President of the National Wool Growers' Association, read a paper on the "Tariff on Foreign Wool—Its Relation to Domestic Production," which elicited the following

DISCUSSION :

Mr. Richie. There is one point connected with the subject on which I would like to have a little more light, that is, relative to prices of common woolen goods, blankets, etc. An immense amount of wool is imported every year, but we do not hear of any common woolen goods being imported. The tariff on common woolen goods is prohibitory, and none comes; you can not buy an English blanket in Indianapolis. I do not like to pay six or seven dollars for a blanket here while the same can be bought in Liverpool for four dollars. We used to get one-half for the wool after it was worked, now we don't get one-fourth back in the shape of goods. There is something in it I do not understand.

Mr. Garland. I am not here to defend the woolen tariff, and I can not give so clear an information as the gentleman would desire. I think why he does not get an English blanket here is because they can get a better American blanket than an English. Whether this is true or not, it would be to the interest of the manufacturer to do this. You get an inferior article in the English blanket; they are made of jute and shoddy, and are not worth much. The duty on blankets was very high, but it has been reduced some forty or fifty per cent. The duty on certain articles was so high as to attract attention; we were satisfied we could get as good blankets in this country as in England.

S. S. Richie. When you pay this duty, which is practically prohibitory, it is more on common woolen goods.

C. A. Howland. It is my impression you can buy woolen cloths in England cheaper than here. Go into Canada, you can get a suit of clothes about ten dollars less than you can here. This should not be a political question at all; if we can sell our wool for more money and get our goods for little money, we are all protected. I am in favor of protecting the wool interests anyhow. Let this matter regulate itself according to the interests of the people. If I am raising sheep and sell wool it is to my interest to have that wool interest protected.

Mr. Richie. My object is equality. If there is a prohibitory tariff on blankets I want the same on wool. If the tariff is reduced on wool I want it reduced on the other.

Professor Garland.—I do not intend to be drawn out in this schedule; I agree, however, with the gentleman, that the tariff on blankets should not be prohibitory. In extreme cases the tariff on blankets ran up to 102 per cent. The obstacle in importing blankets is not so great as it was. I am somewhat familiar with some of the report of the Tariff Commission, which has been somewhat modified, but I am not ready to discuss it now.

Mr. Richie.—I want the duty on blankets reduced to the same as that on wool.

The manufacturers have no right to protection more than the wool growers. Agricultural labor in England is lower than factory labor or agricultural labor here. Equality is what I am looking for.

Professor Garland—I would have the tariff on blankets and woollen goods, but not prohibitory. I want these gentlemen here to raise all the wool they wear. All the wool brought from other countries interferes with our wool interests here.

Mr. Richie. I have no objection to high or low tariff, equality is what I want.

C. A. Howland. We should not put forth any uncertain ideas; what we do privately we are apt to do in the public interest. It should be done for the whole interest of those who raise wool. This tariff question is a difficult one to govern; while we claim that the tariff is a good thing, we don't look at the person who buys his coat, but we let him look at that himself. I do not think we can satisfy every one on this question. I am in favor of protecting the wool interest, but I can not say that it is for the interest of all.

Lee McDaniel. I would like to hear Dr. Stevenson on this subject, as we don't know much about it. We want to know if we can compete with foreign manufacture. I am satisfied we can manufacture as good goods in the United States as elsewhere. I want to know if I can be protected in the wool interest. We want to know what kind of sheep make the kind of goods we wear, from the the finest broadcloth down to the common kind. I am in favor of protecting Uncle Sam's boys in this industry. Four sheep is all we can pasture on an acre; a fleece weighs say six pounds; what can we do at twenty cents a pound? We have just got to quit it, and unless there is more protection we will quit the raising of sheep. We must have this thing equalized. We have found that we can not raise wool at such prices.

Mr. McGaughey. If these gentlemen want cheap woollen goods would it not be best to take the tariff off of wool; we will then have cheap woollen goods.

Mr. Thompson. I used to think my friend over the way was led by the spirit. There is nothing to discourage the flock-master at the present time. We are sorry that the tariff has changed but have not the blues about it nor are we going to quit the business. We are going to raise sheep, and we will shear ten pounds of wool to the sheep; our sheep will weigh 150 pounds, and there is more profit in them than in feeding cattle.

Dr. Stevenson. I really feel that I know too little about the subject to discuss it. I was very much pleased with the course that Congress pursued in the appointment of a Tariff Commission. They appointed nine men out of civil society; nine good men of the citizens of the country. I was pleased with the course they pursued. They met and appointed a place they intended to visit, giving the people an opportunity to come forward and be heard. This Commission proposed to go to their rooms and let all come in and testify on this subject, and they did so. They did more than that; they gave the editors of the papers a chance to publish this testimony, and the testimony of Congress. I have not seen this law and am not able to discuss it fully. There has been no complaint that this Commission kept out anybody, tariff men or anti-tariff men. Farmers and wool growers came in and testified; they reported it to Congress and it was published all over the country and when Congress met they had it before them; they had the subject of blank-

ets before Congress. Blankets run up high here, as we have money loaning at three per cent., and are purchasing bonds at two per cent. Capitalists are seeking money investments. Indianapolis is loaded with money; you can get money here for six per cent. on five years' time. If there was profit in these blankets many factories would be started here. We want some profitable mode of investing this money. Competition will bring down prices here as well as in England. The only thing we have to contend with is cheap labor. If wool is low, blankets will be low. If you are ready to take this protection it will be so. Competition in this country will bring it down.

Mr. Richie. It will never bring it down, sir, while you pay 102 per cent. on English blankets.

Dr. Stephenson. I have wintered as many as 1,900 sheep. I would want to raise sheep if I were young—I do not know of any industry that I would go into as soon as raising sheep. You can raise mutton as cheap as beef. Go down to the cattle yards you will find that cattle sell from two to six dollars per cwt.; sheep will bring three dollars right in your own markets; if cattle can be raised profitably sheep can be raised profitably. We get a fleece of wool and a lamb every year, and do not have to keep the lamb as long as a calf to sell it. We can raise mutton cheaper than we can beef, and supply our markets here. Your lands are wearing out and you must manure them, you can not do this so well as with sheep. There is a wide difference in the land of the farmer who feeds his sheep on his farm and one that does not. The farmer raises corn and sells at 50c a bushel, but he does not take into consideration the wear of the land; in fifty years his land is gone, but let him feed his sheep there and it will help his farm. A very convenient way to feed sheep is to have a hurdle made of light posts, so you can move it from place to place; you can manure your farm well in that way. I once fenced a field for my sheep to keep the dogs out, after keeping them there quite a while I put that field in corn, and it made a great difference. I am eighty years old, if it were not for my advanced age I would engage in raising sheep again.

Mr. McDaniel. I have plowed my sheep pasture and realized 108 bushels of corn to the acre.

Mr. Nelson. I was well entertained in listening to the reading of that paper, and feel encouraged. I do not wish to discuss the matter until I move a vote of thanks be tendered Mr. Garland.

Mr. Mitchell. I obtained a copy of the report of the tariff question before Congress. I have read it through, and come to the conclusion that it was a just law. Woolen goods are taxed sufficient to give our manufacturers sufficient protection. Common wool and imported wools bear a tariff of 12 cents per pound. It is a law which should satisfy the wool growers. The price of wool is not high. I sold a thousand pounds this year at 20 cents per pound, yet I think the sheep men have a bright future before them.

Dr. Stevenson. There seems to be an apparent high price on manufactured articles. We have 10 per cent. on wool; the manufacturer buys this wool, and pays this duty, and we in turn pay the manufacturer a duty on his cloths, sufficient to enable him to compete with the foreign manufacturer.

Mr. Richie. They pay the duty of ten cents on wool, and get twenty cents on the blanket; where is the man who buys the blanket?

Dr. Stevenson. If you give the manufacturer 30 per cent., he pays out of that 30 per cent. 10 per cent. on the wool. The duty that is put on his goods is paid out of his duty you have on the wool.

Mr. Garland. The high-priced wool, and also wool that came to this country from Central America, in 1867, sold at 11 cents per pound, and is worth now 13 cents to 14 cents per pound; for washed, 20 cents per pound, and scoured 30 cents per pound. There is a great deal of high-priced wool coming to this country from Australia; indeed, that is about the only kind of wool coming in now. It has been demonstrated to the satisfaction of the tariff committee, and any gentleman who will investigate it. We take our common wool, and it will take $3\frac{1}{2}$ pounds of that wool to make a pound of cloth. It loses about 66 per cent. in scouring; something near one pound in three left, when ready to put it on the pickers, and the card and shears; for this reason this tariff is probably intended. The old tariff recognized four pounds of wool for one pound of cloth; this law which goes into effect in June recognizes only $3\frac{1}{2}$ pounds.

Messrs. Farquhar, Mitchell, and Howland were appointed to select a committee to examine wool on exhibition, preparatory to the awarding of premiums.

Robert Mitchell read the following essay on "The Profit of Raising Sheep."

Mr. President, and Gentlemen of the Indiana Wool Growers' Association:

Profit is the beacon star that guides farmers as other men. He is influenced by the pecuniary motives which direct him. So it is necessary to show, If it is profitable to keep sheep? Professor Dodge, of the Agricultural Department, at Washington, assigns two very important reasons why it is profitable to keep sheep, and these two reasons are worthy of special notice. The first one is the great antiquity of the business. Shepherds figured in the earliest history. Abel was a keeper of sheep. Its extension among nations of all degrees of civilization, and its retention in countries the most populous and wealthy, illustrates the universal belief that there is money in it. Hence the term "golden hoof" has been applied to sheep.

The second reason is because its covering has ever furnished clothing for man, its flesh an important item of the food of man, and its pelt is used in the form of covers for books, gloves, and many other uses. What animal has such resources to supply the wants of man, and special adaptation to the economy and success of farm management? The kind of sheep that would meet the approbation of wool growers should have size, thrift, or disposition to fatten, hardihood, early maturity, prolificness, quality and quantity of wool. These are matters of great consideration in these animals. It can not be said that all these properties have as yet been combined in the highest degree in any one kind of sheep. Perhaps such a combination is impossible; but the efforts for improvement of the different breeds, and in several instances the success of those efforts have been as remarkable as the improvement of neat stock. Two questions then present themselves to those engaged in sheep husbandry, namely the production of wool and mutton. Those who use

judgment and energy in the production of really superior mutton, or early lambs, will reap abundant profit, and the earlier the start the quicker the reward. That it will engage the attention of enterprising farmers and meet their just expectations there is no room for doubt. It was thought with the close of the war that the price of meats would decline, disastrously to the meat producer, but that decline was only momentary, for a nation with such vast resources as America could not stop to brood over civil strife once settled. So with peace came back to rural life an immense army, some to be producers and all to be consumers. Then again our shores are swarming, and for years to come will swarm as never before, with foreign emigrants hungry for meat, however stinted by poverty before. All these mouths, and millions of unborn children, are to be supplied. With what shall we feed them? Not with pork, becoming vastly dearer with the increased price of corn. Not altogether with beef, while there is such a demand for wool, and just precisely the kind of wool produced by mutton sheep. We must have mutton and sensible men with money will pay prices that must command good mutton, and render its production profitable. Conditions now exist favoring adequate remuneration in this branch of husbandry that have never before been brought together in so potent a combination. There is an opportunity to achieve a fame and a success in this direction; a field as yet almost entirely new, that should engage the effort and ambition of our young and enterprising stock breeders, and there is little doubt that it will be promptly and successfully occupied. The improvement in sheep and cattle for the shambles consists in perfecting three great cardinal points:

- 1st. The early period at which they are ripe for the butcher.
- 2d. The great amount of meat they produce in return for the food consumed.
- 3d. The large proportion of prime meat which they yield.

The tendency of improved breeds of all domestic animals to relapse to their original status when they are neglected or abused should be no discouragement to improvement. All our best breeds of horses, cattle, sheep and hogs have been produced by careful and judicious crossing and selection. Stock breeding requires great care, and all improvement in stock can be fully maintained only by a reasonable share of the same care and judgment by which the improvement was originally effected. The systematic handling at regular times of all the stock, in and out of their stables, so familiarizes them to their keepers that they become pleasantly acquainted with each other, which gives increased confidence in both, and thereby the animals become docile and tractable, and the owner soon comes to understand their wants, nature and peculiarities, and how to treat their diseases successfully. Thus the management of stock generally is reduced to a science, eliciting study, observation and reflection, and by thus exercising the intellectual faculties, the business becomes interesting as well as profitable.

Knowing and appreciating the animals more highly, the keeper is moved to treat them rationally and with increased kindness, which really constitutes him a better man, and them better servants. -

DISCUSSION.

C. A. Howland. It is evident that we have got to look to the mutton interest. There is no getting around the fact that meat is becoming dearer every day. If you expect your posterity to have meat you must encourage the production of that meat in the shape of mutton. It is my opinion that in ten or fifteen years hence, beef will go beyond the reach of any ordinary laboring man. If they apply for a choice roast it will cost the price of a day's labor. We can produce a quality of mutton that will suit the laboring man and strengthen him for his labors, which will be cheaper than beef. The wool growers of to-day should look at this. We have got to look to something besides beef to sustain our rapidly increasing population, and that can only be done by the raising of mutton. I know that I can produce mutton cheaper than I can beef, and I will never be discouraged if wool does not go below twenty cents per pound, though I realized twenty-five cents per pound this year. My lambs are in good shape now for market. We will raise sheep more for mutton in a few years than for wool.

Mr. Richie. It is an interesting and practical paper to me. I like it very much. In Quaker parlance, we have been highly favored with addresses to-day.

The convention adjourned until 9 o'clock to-morrow morning.

MAY 31, 1883.

Convention met at 9 o'clock A. M., President Beeler in the chair. The reading of the minutes of yesterday's meeting was dispensed with.

On motion of Secretary Robe, the following committee on programme was appointed: Messrs. Nixon, Mitchell, Farquhar and Nelson.

Morris Howland read the following paper on the subject of "Feeding Sheep for Market:"

FEEDING SHEEP FOR THE MARKET.

BY MORRIS HOWLAND, OF MARION COUNTY.

Mr. President and Gentlemen of the Indiana Wool Growers' Association:

In obedience to the programme of this meeting, I have prepared a few thoughts upon the subject assigned me, namely, "Feeding Sheep for the Market."

The sheep is more inclined to variety than any of our domestic animals, endowed by nature with a better relish for most of our grasses and grains, as well as our obnoxious weeds and shrubs while in a green state, while a large portion of them are readily sought when properly cured, which gives them the preference

over all other animals in point of feeding for profit, as the larger amount the feeder has to draw from the greater the chances are for success if proper care is maintained.

The first thing in order to profit in feeding sheep for the market is to so arrange them in flocks that they will not be too much crowded for space, and see that they are about uniform in size and condition. This depends much on breeds. The large Cotswold and their crosses will not bear so many together as the South-down and their crosses, neither will the Downs and their crosses bear in numbers as many as the close, compact Merinoes, consequently it is very essential that this fact be constantly kept in mind while assorting your flocks for feeding. When this is properly attended to, the next thing presenting itself is, what have you got to feed? As you have so large a variety to draw from, it is very essential that you should give that due consideration and assort accordingly.

If you have a fine field of rye or blue grass, you will not bunch in as small bunches as though you had to confine your sheep in a closed yard and feed on dry feed and roots. The next thing in order is to see that your sheep have sufficient shed room to safely protect them from both wind and storm, be that in the field or yard. That being done, the next step would be a suitable rack and trough that you can feed without waste, which is a great saving, which without proper attention would result in quite a loss.

The best rack and trough that I have seen, is a combined one, that you may feed your hay and fodder in the rack, having the trough so adjusted that the finer portion will slide down in the trough where it can be readily gathered by the sheep. It is the most convenient to feed your grain in.

If you have rye and blue grass you need nothing but good sound corn, with the necessary salt; that fed, in proper quantities, you will have no further trouble. You will see your sheep thrive, and do well; let me assure you that each sheep has a mill of his own, that will far surpass any other in the country, for his purpose. But, if you have to depend on dry feed, you will have to take a little more pains to keep them in a thriving condition. If you have good clover hay, you have a very good substitute for rye and blue grass, but will want either oil-cake or roots to help you out with your shelled corn, as in the other case. They will want to be watered daily, which will give them sufficient exercise.

Some clean their yards quite often. I would prefer to give them a good litter of straw each day, thereby keeping the yard clean, and making a better quality of manure, which is no small item in the account.

As to quantity of grain, you will have to be governed by the size of the sheep. To make yourself safe, better not start to feeding more than one gill per head at a feed, and increase gradually, until you get them to about what they will eat up clean. But, never let them have feed laying by them. It is too much like old stale victuals to yourself, which you would quickly realize that it is not what you relished. So, with mixed feed for your more sensitive friend, the sheep. If you find any not doing well, take them from their comrades, and put them in a separate place, where they will not be jolted about by the more hardy. You will find that in most instances they will commence improving, and give you a fair profit for your trouble. But, never put your stock on the market until they are in good

shape for the butchers' stalls; better leave those at home that are not in a fit condition, for they would only injure the sale of the rest of the flock.

The best time to dispose of your flock is when you get them in fit condition, as good stock generally commands a good price, and gives good satisfaction to both producer and consumer.

I. N. Cotton. The paper is a good one. One point was not touched on, that of watering. I want my sheep to have water at will.

Mr. Howland. Very few of us have water handy in our troughs. I let mine out once a day for water. I think that is sufficient.

J. L. Thompson. I have had a little experience in feeding sheep. I take a different plan from my friend, here. His plan on a small scale would perhaps be better. I have been accustomed to feeding my sheep in the open field. I selected, after harvest, a few good wethers, until I got about 200 head, yearlings past and two-year olds. I let them run on clover and blue grass pasture and have the range of the wheat stubble. When I commenced feeding I gave them shock corn. In doing so I thought I was throwing my corn away, when I commenced husking it. I experienced some difficulty at first in getting them to eat after taking them off of the grass. After cold weather set in I fed them on chopped corn and fodder. When on the blue grass I could not get them to eat much. During the winter I let them have access to a straw stack for protection from the storms, feeding them on the knolls in my fields to enrich the soil. This was a mistake with me last winter, as the ground was covered with ice, and by thus feeding the grass was killed out. The way to correct that would be to feed as much as possible on land we aim to cultivate the following season. There is one difficulty, however, in this, when the season is wet we can not feed on the ground. This may be avoided by shelling the corn and feeding in troughs. We should feed on land we aim to cultivate, by so doing we will get better returns. I never have had experience in injuring my pasture before this season. I got a little dear experience this winter in feeding some sheep on a hill in my wheat field. I thought it would be an advantage to the wheat, but in this I was mistaken, the wheat went with the ice. I fed my fodder out in the shock, hauling it out on a sled and scattering it thinly on the ground, feeding once a day. After cold weather set in they would usually clean up well. I do not think their fleece was injured by having the run of the straw stack, as the wheat was smooth. I bought by the head and sold by weight, and realized over one dollar per bushel for my corn. A portion of my sheep, ninety-two head, I paid five dollars per head for them. I sold them about the first day of February at five cents per pound, weighed at home; they averaged 111 pounds.

Morris Howland. Would you not realize more to have topped them?

Mr. Thompson. I used to ship a little stock. I think it is the farmer's place to sell his sheep at home. I could not have made much difference by topping; by so doing I would have had to sell a large portion of the lower quality at four cents. The farmer who sells his stock out in the lump would get as much as that any way. I selected my sheep very carefully, and fed and sold them myself. I made my money by keeping until a high price came. I realized ten pounds gain.

W. W. Thrasher. I do not arise to criticise the young man. He alluded to one thing we should all learn. He said he sold his stock at home, when he got it ready

for market; we should all learn that; we should take the market price and sell at home. Some people think they are smart enough to go out and sell their stock, but they get picked up every time. A farmer can do but one thing at a time; if he attends to his farm and stock right well he has not much business away selling his stock in the market. I have seen many mistakes made in that direction, and some farmers ruined by it. I never fed a lot of sheep especially for the market, but I have two neighbors who do, and they have as fat sheep as I saw anywhere. Both feed a considerable number of hogs, and both run and eat together. We should feed our sheep and hogs in the fall before the weather gets bad. They like a variety of feed, and they will get it in the fall. You can put two pounds on a hog in the fall to one in the winter. I am satisfied that many people injure their flocks by shutting them up in their sheds. Have your shed open and let them go to it at will; in the case of storms they will go to it every time and remain there until the storm is over. If they are kept in there they become too warm, and their filth is damaging to them. The best results can be obtained by feeding sheep with hogs as I have stated; scatter the corn out and feed them before cold weather, they will do better than feeding in the winter. Either hogs, cattle or sheep, you can put on more pounds than any other time of year. If we want to fatten anything we have got to use corn.

J. L. Thompson. I did not weigh my sheep. I estimated the gain at ten pounds, to be safe. I think the fall of the year is the best time to feed. I think I got two-thirds of my gain in the fall. I usually let my stock sheep follow after my fattening ones. They will clean up all the fodder and corn and thus avoid any waste. It is more profitable to feed sheep, because I can buy them for what they are worth and get an advance more than on anything else. You get an increase in the price of cattle, but not as much as sheep.

Mr. Rahma. I am a new member here and am much interested in listening to the discussions. I have been raising sheep for twenty or thirty years. Seven or eight years during the last thirty. I have not been in the business, except the last two or three years I have been engaged in it. I feed a lot of sheep every winter. One lot I fed last winter averaged 165 pounds. I bought them in September and sold them the first of January. I fed them some corn, putting a gain of sixteen to eighteen pounds from the time of purchasing them. These sheep were three and four years old. I fattened a lot of yearlings which would be two years old this spring, that averaged a little over 190 pounds the first of November. I fed them perhaps 150 bushels of corn, having the run of blue grass pasture and timothy hay. I never could fatten old sheep successfully, except on grass. I think this is the time to fatten them. There have been times in the last winter and spring that good mutton sheep, making an average of 150 to 200 pounds, would bring six to six and one-half cents per pound. I sold at five and one-half cents at home. I have fed on bran and offals from the mills. Oats are a good thing, especially for lambs. Sheep should be three years old to feed successfully. I am sure I will never undertake to feed again as young sheep as those I fed last winter, yet I did very well with them.

The Committee on Programme for the next meeting made the following report, which was adopted:

PROGRAMME.

1. President's Address, 1:30 P. M.
2. "Scab, Its Origin, Prevention and Cure." Hon. Lee McDaniel, of Rush.
3. "Best Sheep for Wool and Mutton." Nixon Henley, of Morgan county.
4. "Preparing Sheep for Market." Hon. Thomas Nelson, of Parke.
5. "Selection." S. S. Richie, of Preble county, Ohio.
6. "Selection." Col. J. C. Byers, of Kentucky.
7. Address by Prof. Latta, of Purdue University.
8. Election of Officers.

Mr. Farquhar offered the following:

Resolved, That article 3 of our constitution be so amended as to read, "the semi-annual meeting to be on the first Wednesday and Thursday in June."

Adopted.

Hon. A. E. Sprague, Secretary Ohio Wool Growers' Association, entertained the meeting with the following brief remarks pending the reading of his address:

GENTLEMEN—I am glad to meet with you this morning as wool growers. I am a wool grower myself. I never grew wool in theory; I am a practical shepherd. The subject which I am to talk upon is somewhat new to me, indeed, it is really out of my line. I am to talk to you about an issue that we in Ohio are interested more about at the present time than caring for our flocks. I am sorry that I did not hear the remarks of Mr. Garland yesterday, he has had much to do and a large amount of experience in adjusting rates on not only wool but other articles that are protected. I am an American out and out, was born in this country, and you may look at these things different from what I do. I am a protectionist. I have examined into the history of nations, and I find those nations who take care of themselves are the nations that succeed best. I believe that is so with all of us, and what is true with us as a family is true of nations.

GOV. PORTER'S ADDRESS.

Gentlemen: I had the honor of being invited a few minutes ago to deliver an address before you this afternoon, but I decided to come before noon and address you briefly, not being able to speak this afternoon. I have been trying, with colleagues, for the last two weeks to select sites for three additional hospitals for the insane, and it has been very embarrassing, as there are so many good places at which to locate the institutions we do not know which to select. I am glad you have here so many distinguished gentlemen from abroad, especially the National Wool Growers' Association taking such an interest in their pursuit as to send a delegate here. We esteem ourselves honored. At the last annual meeting of the State Board of Agriculture the chief writer of the National Agricultural Department was here, Col. Dodge. He wrote an article on sheep and wool growing which is circulated throughout the world in the report of the Vienna Exposition. It is pleasant to know that Indiana is attracting such attention in agricultural circles. I have had occasion since I have been Governor of the State to receive many of

the publications from Washington, not only on agriculture, but on other subjects, and I have observed with pleasure the great improvements in these reports. I may refer especially to the report of the Commissioner of Agriculture; a report which is issued every year, and contains a summary of all that is valuable on agricultural topics throughout the world. Among all the books in my library to which I refer, there are none that I refer to more often and with more pleasure and profit than to these reports. I am indebted to one of your number for a gift yesterday of a quarter of mutton, and I may say now, if that sort of mutton could be furnished in Indianapolis, there would be a good market for the flesh, as there is already for the wool. It is delicious; as compared with beef, it is absolutely a luxury. Butchers say, as long as poor beef and mutton will sell as well as good, they will not bring the good into the market. We can establish a market in every city for a much better quality of mutton than is furnished by our butchers; it is to the interest of our farmers to make an especial effort for a good quality of mutton, and the time will soon come when there will be a very marked difference in the price of poor mutton and good mutton. I thank the gentleman (Mr. Richie) for the gift; if he will furnish this market with that kind of mutton I will insure him a price that will pay for keeping up a market. The wool industry is claiming more earnestly the attention of farmers. In going over the State recently, looking for locations for hospitals, I found there many more sheep and fewer hogs were being raised. I believe it will be found that we are becoming more a wool-growing State and less a hog-growing State, but do not know what the statistics will show. I may say, gentlemen, that I have never been so well satisfied with the State of Indiana as during the last six weeks. Ordinarily we travel by railroad, but while looking for hospital sites, I have traveled much by private conveyance, and have seen how wonderful the development is. In the salubrity of our climate, with the ever-flowing streams, and quality of our soil, we stand at no disadvantage with any State in the Union. There has been a wonderful change in the northern part of the State, and especially so where underdraining has been properly done. Last week I was in many of those northern counties. I do not believe any State can present a like extent of surface superior to Northern Indiana. There is the county of Porter, we seldom hear from; since the practice of draining has begun, it is one of the finest counties in the west; others are like it. The State is improving wonderfully, and everything doing well. By the multiplication of our railroads the price of land is increasing. I thank you for the opportunity of meeting you here again. These associations, where men thus come together, to exchange views, are of great benefit. I am glad to see here to day, perhaps the oldest agriculturist in the State, one who has always taken an interest in these Associations. I referred to him last year; my friend, Dr. Stevenson. From my boyhood up I have known him, and respected him, and from that time till now, he has been trying to improve our agriculture. I am sure as we meet him here from year to year, we congratulate ourselves that we have one who has devoted his time so usefully for the best interests of the State.

Hon. Stanton J. Peelle being introduced to the meeting, gave a full history of the action of Congress on the tariff bill.

The meeting then adjourned until 2 o'clock P. M.

AFTERNOON SESSION.

Convention met at 2 o'clock with President Beeler in the chair.

DISCUSSION.

C. A. Howland. Many of us hold that the protection they gave us was no protection at all, and I believe that is the condition in which our friend has placed us, but not so understood by many of us. I hope Mr. Sprague will give us some information on that subject.

Prof. Sprague. I am a practical man and not a theorist; if I can not defend my position I will abandon it. I am after the truth; if I am wrong I do not want to talk any error, for this is too great a country for that. Gentlemen, I learned when I was a school boy in the debating club not to get excited, but learn to go at things, sustaining them by facts. Last Monday I was talking with Mr. C. L. Clark, a noted manufacturer of Columbus. He said: "Mr. Sprague, your folks are a little excited; the trouble is not where the tariff comes in, but it is because you are growing more wool than we want." I said: "Mr. Clark, that will do to talk to some, but not to me." I have the manufacturers' book here; they don't like for us to get hold of it, and they accept it for authority. This book says we produced 320,000,000 pounds of wool last year; this is too high, I think. There will not be over 290,000,000 pounds this year, on account of the losses in our southern and southwest countries. These manufacturers here say we need in these United States 700,000,000 pounds. I was asked before the Commission if I knew the amount of wool that is imported into this country and where this wool comes from. I told them fully one-half comes from Australia in direct competition with our wool. Gentlemen, we have imported in the last three years 80,000,000 pounds, 32,000,000 of which go into the carpet department, the rest into everything that goes into all wool fabrics. The average price in Boston in 1875 was forty-seven cents; the price to-day is thirty-nine to forty-one cents—that does very well. Another gentleman says, "you have got the reduction too high." It is only two cents per pound, and some say one and one-half cents. The ad valorem duty is all gone. This is not figured at less than three cents a pound with wool that competes with ours. Senator Sherman says "an injustice has been done the wool grower."

Governor Curtin, of Pennsylvania, says: "They were not properly treated; the manufacturers are strong and wealthy, they demand while we ask." Mr. Dean, of Columbus, Ohio, says "the idea is ridiculous that this country can not compete with England in wool growing, where they rent their land, farmers paying from twenty to thirty dollars an acre rent."

A large portion of our wool comes from Australia and South America, where land is worth little or nothing. Mr. Dean also says: "I am in favor of free trade for raw material." I spoke to you of specific and ad valorem duty. I asked a man of prominence, not long since, if woolen goods have been too high for the

last two years. He said "no." I asked the lawyer and the laboring man, and received the same answer. What is this howling about to make this thing cheaper? Who asked the Commission to reduce the price of woolen goods? "Nobody," says the manufacturer. Are you aware of the fact that the manufacturers were willing to be reduced? The cotton men said, "We don't want any protection," but they got it. These things are unexplainable, except in the New England States, which represent a grand monopoly. They, to a man, except one who was poor, voted for it; they were protected in everything. It forced Congress to pass a tariff law, that many never read and had no chance to read; they were compelled to vote for it or not at all.

S. S. Richie. It is a complicated subject. I do not understand what per cent. of protection that the manufacturers have on common woolen goods, neither do I understand exactly the per cent. of protection that the wool growers have, but I have looked into it a little, and as far as I have been able to see, I believe there is a difference of from twenty-five to thirty per cent. in favor of the manufacturer. I do contend they are not entitled to one-tenth per cent. more than we are. Agricultural labor here is much higher than in England. I want to have it equalized, and I don't intend to be still till we get it.

Mr. Sprague. As I explained, the manufacturer has two duties, specific and ad valorem. Under the old law they had fifty cents per pound; you wool growers have got twelve cents protection, while the manufacturer has fifty cents. We wanted an ad valorem duty of thirty-five to forty cents, but we had to give it to them; it was the best we could do. We have 50,000,000 of inhabitants, in twenty-five years it will be 100,000,000. We consume in woolen goods 500,000,000 pounds of wool, in twenty-five years we will want 1,000,000,000 pounds.

Mr. Richie. I think there was a great deal of trickery in the investigation between the wool growers and the manufacturers. It was reported that the manufacturers had brought over the Consul from this government from Australia to assist in arranging this tariff against the wool growers.

Mr. Sprague. They told us in Congress last winter that we would have no trouble if it were not for Ohio. I am sorry that some men can only hear one side of the question. We had a meeting in Columbus, January 9. During this meeting an item appeared in the Daily Journal, of Ohio, as follows: "An important visitor, Charles Galute, United States Minister to the Court of Sidney, is in the city; he comes here in the interest of the Australian wool growers, to endeavor to get the present law as recommended by the tariff commission, passed by the Congress of the United States." Mr. Galute said: "We send you our wool, and buy of you machinery."

Hon. Cyrus T. Nixon. Mr. Galute is a citizen of Indiana; if this is true it is something I do not understand. I wrote to him sometime ago in reference to the wool growing interest in Australia. The Vice Consul wrote me that Mr. Galute was in the United States on this mission, and said as soon as he returns he will answer you on the tariff.

Mr. Sprague. I do not say that Mr. Galute helped this thing on. Australia grows the same kind of wool we grow here. Their wools are unwashed. The skirts are taken off, leaving nothing but that which grows on the sides and back.

Our manufacturers say they would rather have their unwashed wool than our washed.

S. W. Dungan. It is not so strong in the fibre, is it?

Mr. Sprague. John L. Hays says the foreign wool is a little nicer, but we told him we could grow anything, sheep without tails, if you please. One minute they tell you it is nice and the next it is not so nice.

The Committee on Premiums on Wool made the following report:

FINE WOOL.

Thomas Wilhoit	First on fine wool.
J. L. Thompson	Second "

DOWN WOOLS.

I. J. & W. T. Farquhar	First premium.
Uriah Privet	Second "

GRADE WOOL.

W. L. Schooley	First premium.
J. L. Thompson	Second "

LONG WOOL.

W. D. Privet	First premium.
S. W. Dungan.	Second "

HEAVY FINE WOOL.

H. G. Shillito, Penn.	29½ pounds, first premium.
I. N. Cotton	21½ " second "

HEAVY LONG WOOL.

W. D. Privet	17½ pounds, first premium.
S. W. Dungan.	15½ " second "

GRADE WOOL.

S. W. Dungan.	15 pounds.
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GEO. MERRITT.

A paper prepared by Lewis Bollman, on "Wool Growing Under a Protective Tariff," was read by President Beeler, of which we extract the following:

THE ONLY WAY TO SUSTAIN THE WOOL GROWING INTEREST.

 BY LEWIS BOLLMAN, BLOOMINGTON, IND.

What, then, should be done? I answer, in this, as in all other pursuits, by individual intelligence, energy and perseverance to achieve success. But, first, we must abjure mere theories, especially of a political party character, as is the doctrine of protection on the one hand, and of free trade on the other. If you would see the result of blind theory, you will find it in the Statistical Reports of the Department of Agriculture, by the gentleman who succeeded me as Statistician. He was a warm advocate of the protection given to wool growing by the act of 1866. His reports of the number of sheep in the States I first referred to, show that of the 32,695,797 sheep in 1865, there were in 1869-70, 30,242,600; but the census report of that year, more correctly stated them to be but 20,167,716. Neither statistical estimates, nor wool growing, nor any other practical pursuit can be safely conducted upon mere theories.

Intelligence, energy and perseverance only will insure success, and allow me, in conclusion, to speak briefly of these qualifications:

Intelligence. I do not refer here to general intelligence, but to every special knowledge connected with the pursuit of wool growing. It embraces a knowledge of the sheep itself. That animal is unlike other farm stock in the peculiarities of its constitution. Horses, cattle and hogs we can confine, but the sheep we can not. It needs pure air, but must be well sheltered; we must have barns in which, in the worst of weather, it may be confined; sheds where it may voluntarily go for temporary protection, where it may get dry food in racks and concentrated grain food from troughs, as a special food; for it must have green food, dry food, and grain food at all seasons. Herein, too, it is unlike our other farm stock. It is subject to many diseases, foot-rot, scab, and other like diseases, which indicate delicacy of constitution. The development of diseases must be avoided by anticipatory care. Exposure and want of proper food will develop them. The last report of the Department of Agriculture is significant—that on the condition of farm animals. The losses of sheep in Pennsylvania were five per cent.; in Texas, twenty-three per cent. I do not suppose it was one per cent., in the former State, among the best wool growers. One of these is Robert Vanvoohris, of Washington county, recently retired from the business. He had every building necessary; he saw his sheep housed from every storm and from inclement weather; in the lambing season he was with his sheep day and night. His sheep were drawn from the flocks of the best wool growers in Vermont, his own sales being largely for breeders. His ewes sheared from twenty to twenty-two pounds, and these, when sold to neighbors, often fell off one half this amount the first year, for want of that care he had given them. His wool was always at a premium. His closing out sale was to a gentleman of Texas, amounting to \$4,000, and occupying in bargaining just fifteen minutes.

Energy. Mr. VanVoohris never trusted to others, but personally superintended the work I have indicated. To him it was a labor of love for the animal; a conscientious duty. And this intelligence and this energy must have this basis; for the work to be done, and the care to be given is then not labor, but a pleasure, and will always result in profit, also. Christ drew his companions of love to others from the relations of the shepherd to his sheep.

Perseverance. In this country of ups and downs in our general financial condition, and where energy is so often not governed by prudence, times of discouragement are frequent in all departments of business. This leads to frequent changes in business, or to that multiplicity of pursuits which has given rise to our adage, "where many irons are in the fire some of them will burn."

It was, if I remember correctly, the Rothschild of Brussels who declared that it was easier to make a large fortune than to keep it. He said: "If I had followed the advice of my friends I would have been a beggar. My oldest son, who is a brewer, took a notion he would quit the business. I told him not to do so, for he knew all about that but nothing about any other occupation, and that if he persevered he would become the head brewer of the city. He took my advice and he is now the head brewer." This was sensible advice, and we, of all other people need it most.

I conclude, with an application to wool growing, of this noble and most truthful declaration of the late James Vick: "The farm is not a place for stolid drudgery and unthinking toil, but a field for study, thought, research and culture; a place where not only money but an honorable name may be earned."

Mr. Hanna read the following essay on the "Present Dog Law of Indiana."

PRESENT DOG LAW OF INDIANA.

BY ALEX. M. HANNA, OF MARION COUNTY.

Mr. President:

The Committee on Programme, in selecting me to read a paper at this meeting of the Association, very kindly allowed me to select my own subject. I might very consistently occupy the time of the Association, and perhaps do some good at the same time, by discussing some of the very complicated questions pertaining to the breeding and care of sheep, but I have thought that I could do more good by discussing a question, which at this particular time will come nearer home to the understanding and interests of farmers and wool growers. Mr. President, I want to discuss the present "dog law" of Indiana.

I may be mistaken in supposing that the purpose of a dog law should be to protect sheep husbandry by providing a fund for the payment of all sheep killed by dogs, and also by providing that all non-taxpaying and worthless dogs shall be killed. If these are the main purposes of a dog law, then the present one is a miserable failure, for I assert that under its provisions there will not be revenue enough raised to pay for half the sheep that will be killed, and it will not kill a single dog, except by accident.

Now as to revenue. The only successful way to collect a dog tax is by a registration, and a tag to be worn by the dog, with an additional provision making it some one's duty to kill all untaxed dogs. Universally, when we have had such a law upon the statute books of Indiana, the revenue has been greatly increased and has been sufficient to pay for all the sheep killed in a majority of the counties of the State, with a surplus for the school fund in many of the townships. Under the provisions of such laws, the number of sheep has always increased and the number of dogs decreased. Under a tag law the owner of a dog must pay his taxes in the purchase of a tag, or commit perjury when he reports to the Township Trustee.

The tax payers of Indiana are divided into three classes, of about equal numbers. First, those who always pay taxes willingly and without compulsion; second, those who pay by compulsion, and third, those who never pay at all. Each of these classes will be compelled to pay a dog tax under a tag law, for there are few men who will commit perjury rather than pay a dog tax.

But under the present law, the feature of paying taxes by the purchase of tags has been abolished, and all the owner of a dog has got to do is to have his dog listed and have the taxes charged against him "carried to the column of totals." The whole business of taxation stops right there, in my judgment, except as to this first class of tax payers, for they will manfully step up at the proper time and pay their dog tax. But the second class, or those who pay by compulsion, seeing no compulsion in the law, will pay their other taxes and leave their dog tax unpaid. "But," says one, "there is compulsion, for the dog law says the taxes shall be added to the column of totals and collected as other taxes are collected." Ah, yes! but there are two ways of collecting other taxes. One way for personals and one way for realty. Which shall your aristocratic listed dog be, real estate or personal property? If real estate, how will you advertise him and describe him? If personal property, offered for sale on distraint by the County Treasurer, who will purchase him? Or on failure to sell the dog himself, what County Treasurer will sell the household goods from the wife and children to collect a delinquent tax on a miserable cur? One of the excuses for repealing the law of '81 was, that the constables, for fear of giving offense to dog owners, would not kill untagged dogs. Is there any more reason to suppose that County Treasurers will be less careful to give offense? Oh, no! This law is a sad failure and will leave this second third of the tax payers entirely free from a dog tax. Now as to the third class, or the class that never pays taxes. What a laughable farce this listing of dogs will be to them. The thing is too ridiculous for discussion. Any one with half a mind can see that only about one-third of the owners of dogs will pay taxes on them under the present law, and the dog revenue under this law will be less by one-half than it was under the law of '81.

Now, as to killing worthless dogs. There is not a line, sentence or word in the present law, making it anybody's duty to kill an untaxed, a sheep-killing, or even a mad dog. You would naturally suppose that, if my dog kills your sheep, the law would compel me to kill my dog, as it ought to; but it does no such thing. It only says I shall not own or harbor such a dog. I may sell him; I may give him away where he will kill other sheep, and thus amply fulfill this beautiful law. If

your dog is "listed" for taxation, and becomes a mad dog, I may not kill him without subjecting myself to a fine and imprisonment. If he has killed my sheep, I may not kill him without fine and imprisonment unless I kill him in the very act. Certainly there are certain places where any one *may* kill certain dogs, but your mad dog, and your "listed" dog, and your dog that *has* killed sheep, are not of that class. In every case it is only somebody *may* kill. There is not a word in all the law where any one *shall* kill. And do you wonder that dogs increase, and that sheep are being killed by the thousand? Even where you may kill, there are so many sections of the law pointing at you with fines and imprisonments, that the farmers will be afraid to kill. It was said by those who had the law of 1881 repealed that the law could not be properly executed because constables would not kill untaxed dogs. True; but the constable is not the man who ought to have such authority. The owner of a dog who will not pay the taxes should be compelled to kill him. The owner of the dog that kills sheep should be compelled to kill him, and in each case the owner should be heavily fined and imprisoned if necessary upon failure to do so. Pass a law like that and your dogs will all be taxed, and your sheep-killing dogs all killed. Another great objection to the law is that it is indefinite and complicated in regard to the payment for sheep killed. I can find no authority directly authorizing trustees to pay for sheep. It is all an implied authority. And even if he has authority to pay, there is no authority to take testimony as to the value of the sheep killed, leaving the whole question with the Trustee himself as to the amount to be paid, and thus laying the foundation for the meanest kind of favoritism.

This law, then, Mr. President, is an outrageous failure, and should be entitled "A law for the protection of dogs, and to exempt the owners thereof from taxation thereon."

Well, what is our remedy as wool-growers? Simply to stand together and demand our rights to protection. Go to the law-making power, demand the repeal of the present law and the enactment of a better one, with the main feature therein that every dog in the State must pay his taxes or die. And while we are waiting for that protect your sheep at all hazards and take the consequences.

DISCUSSION.

Mr. Sprague. I like the tone of the paper. I have lost largely in the last two years by dogs; I had \$1,100 worth of sheep destroyed in one night. We have a good dog law in our State; the man losing sheep is sworn to it and two land holders prove it; he then goes before the Commissioners, and they allow the bill if they see best. Any one is authorized to kill any dog not listed for taxation. I may kill any dog on my farm, if the owner is not with him.

I. N. Cotton. When a dog is off his master's premises, he is liable to be killed. He has no more right on my premises than my neighbor's horses. I admit there are some defects in the present law; while this is true there are localities where the people are not in favor of enforcing any laws. The people must be up with the times, or else the laws would not be enforced even in criminal cases.

S. R. Quick. We breeders should adopt a war of extermination and exterminate

all the dogs from our neighborhood. This we have done in our locality, and not a sheep has been killed within six miles of me in the last year.

Mr. Mathews. I have been raising sheep all my life, and am an enemy of the dogs. I have suffered much this winter from their ravages. I want a law that will protect my sheep against those vile curs. It is our own fault if we do not have a better law. If every man in this Association, who is engaged in raising sheep, would put forth a little effort, our candidates for the Legislature might be pledged to give us protection in this respect.

Mr. Richie. Pledge every man so we can hold him—I think it can be done—to vote for the interest of the wool grower in regard to the dog law.

C. A. Howland. We should have a good dog law in Indiana; in that law we must have the right to kill a dog if he is found off the owner's premises, and make it a penal offense to resist to pay a tax on a dog owned or harbored by any one. We must have money to pay for sheep killed by dogs. We need such a law, and if we ask for it we will get it.

Mr. Nixon. The present law provides that at the end of a year a portion of the dog tax goes into the school fund of the township. That may be very well if the sheep killed by dogs are all paid for, but not a cent should go into the school fund if not.

Mr. Mathews. When my sheep were killed I laid in my complaint to the Trustee. He had but little money, and what he had should go into the school fund. I think this money should be kept in the county treasury one year, so we could draw on it any time.

W. W. Thrasher. I have not seen any practical thing yet; many years ago the Cattle Association appointed a committee to go before the Legislature and have a law passed that we should place the Herd Book in the public libraries for the use of the cattle men of the State. The argument used was that the lawyers and physicians would get up a law to furnish books for themselves and nothing there for the farmers. This committee worked the matter up, and finally succeeded in getting a bill passed providing that the Herd Book should be kept in the public library as published from year to year. Would it not be well for this Association to do the same thing, and get a dog law that will suit us? I am satisfied it can be done. They must pay some attention to a committee coming from this Association. I think this would be more practical than any thing talked of yet. Let this committee attend the next Legislature, and work for such a law. We want our sheep protected. The last law we had was the best, for thousands of dogs were killed under that law.

The following letter from Mrs. Virginia C. Meredith, was read by the Secretary:

* OAKLAND FARM, CAMBRIDGE CITY, IND., May 10, 1883.

Mr. J. W. Robe, Secretary Wool Growers' Association:

DEAR SIR—My husband, the late Henry C. Meredith, proposed at one of your first meetings that members should keep some account of their flocks. I enclose the result of his record of our Southdowns. No account is taken of feed; we feed grain all the year. A small ration of corn from May to November, and oats

and bran from November to May. An examination of the figures will show that the income from the flock has been sufficient in four years and a half to pay for the original flock, additions of imported sires, etc., and yet leave a balance of \$472.51, and the fifty-eight sheep now on hand. Hoping that you may have a pleasant meeting,

I am respectfully,

VIRGINIA C. MEREDITH.

Jan. 1, 1879.	Twenty-six Southdown sheep at \$20 (estimated).		\$520 00
	Sales and premiums during the year	\$253 21	
1880.	Cost of addition to flock by purchase		83 00
	Sales during year	548 00	
1881.	Sales during year	152 00	
1882.	Cost of addition to flock by purchase		506 45
	Sales and premiums during year	628 75	
	Total	\$1,581 96	\$1,109 45
		1,109 45	
			\$472 51

May 1, 1883. Balance to credit of flock, fifty-eight head of sheep.

The fifty-eight sheep now in the flock could fairly be estimated thirty per cent. higher than in 1879, on account of quality, and more especially because of the great appreciation in value of all the Down breeds.

Convention adjourned.

JANUARY MEETING, 1884.

The semi-annual meeting of the Indiana Wool Growers' Association met in the rooms of the State Board of Agriculture, in the city of Indianapolis, January 31, 1884, at 1:30 o'clock, P. M., with President Fielding Beeler in the chair.

The minutes of the previous meeting were read and approved.

On motion, W. J. Carter, of Westfield, Ind., was appointed to report the proceedings of the meeting.

S. W. Dungan, Treasurer of the Association, made his report, which was approved.

A number of communications were read. One from Hon. C. Delano, of Ohio, President of the National Wool Growers, urged action upon the tariff question, emphasizing the importance of an official expression from the convention; another from the National Association asked \$50 for its support—referred to a committee; another from T. W. W. Sunman favored a public shearing to be held in the spring.

On motion a committee, consisting of Messrs. Dungan, Cotton and Farquhar, were appointed to take into consideration the subject contained in Mr. Delano's communication.

Hon. Lee McDaniel read the following essay on "The Scab, its Origin and Preventive:"

SCAB, ITS ORIGIN AND PREVENTIVE.

BY HON. LEE M'DANIEL, OF RUSH COUNTY.

This disease among sheep known as scab, has baffled the skill of the best veterinary surgeons of our land. First, scab corresponds with the itch in the human subject, and to the mange in the dog and other animals; it is a skin disease. But, gentlemen, with all respect to your intelligence, I here to-day take the bold ground that scab is not the proper name for this disease, and that there are two different diseases, similar only in a few respects. Scab is a disease that is generated spontaneously by favorable circumstances, such as the accumulation of dust and dirt upon the sheep's back, with hot sun and rain, that will cause the skin to crack open.

These cracks being fed by dirt cause a continual itching, with not a living parasite in or about the sheep. Here is where we are mistaken, this is mange and not scab, as many suppose. The difference I will explain: The pustules or sores are very different; that of the mange you will find all have a red bloody tinge around the edges, with the middle of the scab dented in toward the sheep's body. Now, every member of this house that has examined it carefully will say, yes. Now, this is a good description of what you call scab, but I call it only mange, and you will, too, when you properly understand it. There is a great difference between the two diseases. Now, the scab proper is to the sheep what the small-pox is to the human species; it is as contagious and malignant as small-pox, and ought to be called by that name. Now the origin and start of this disease is admitted, by the best authority, to be an insect or animalcule, that penetrates the skin and lays the egg for the start of this dreadful disease.

Now, gentlemen, I only ask permission for one quotation to prove this position, that is from Randall's Practical Shepherd. He says: "You may place one or more of these female acarus or parasites on the wool and it passes quickly down to the skin and buries itself; is only detected by a small red speck; and on or about the tenth or twelfth day the skin changes its color to a blue greenish tint, forming little pustules filled with very white thick offensive matter or *virus*, full of millions of small parasites, attached to their mother's feet ready to penetrate and bury themselves beneath the skin for nourishment, and grow, and propagate, and spread." This disease is very different from what we call scab. Now, this statement I corroborate by my own observation; therefore it is no wonder that a whole flock go down so fast and die. This condition keeps the animals always uneasy and fretful. They have fever and become thirsty; will drink too much water if allowed, which brings on diarrhea. Now this complicated condition of the animal sends off the most offensive smell or odor of all diseases. A flock-master that has ever come in contact with it once, will readily recognize it by smell; with this knowledge any good flock-master can, by examining the pustules, give a direct diagnosis of the disease. Now, it is very important that all flock-masters be able to do this, because the stalls are sometimes full of all kinds of diseases, and railroad stock cars are full of this peculiar odor. Wherever it has been, your sheds and barns, and fence corners are full. The sheep leave a greasy, poisonous virus on everything they touch, that I think will remain for years. This is exactly the case with small-pox.

It was only my duty by the heading of the essay to give the origin and preventive. Now I am glad you did not put the word *cure*. I would not have treated on that part of the subject; I am opposed to any effort in that direction, whatever, for two or three reasons: In the first place, it is worth the sheep to cure them. It is dirty, dangerous work with many of the prepared dips; they are poison both to sheep and to person, and it will take a year's time and at least two dippings to do it. Even then you are always in dread. My advice is to be able to tell as soon as it makes its appearance in your flock. Then sell every sheep suspected, or that has had the least shadow of a chance. Sell, understandingly, to a grease-rendering establishment, as with sick hogs. And another good reason for my advice to sell is, that even if your sheep gets well, the wool is damaged, for under every pustule

or scab the vitality of the skin is so damaged that the wool will have a dark bluish color, and will never scrub white enough for blankets or white woolen fabrics. Now, gentlemen, the remedies are many and dangerous. My advice for a preventive is to dip just after shearing, each year, in strong tobacco juice, very strong, with a little sulphur. It will prevent scab and ticks. Now I have tried to give you plain honest facts and sad experience in regard to scab or small-pox, as you may choose to decide. I have had thirty years' experience in handling sheep, and think I have many things yet to learn. So I hope in your criticisms you will deal with me gently. I, therefore, submit the paper for discussion.

Mr. Darnell. You believe that to be a species of small-pox?

Mr. McDaniel. I do, most emphatically. This dipping with tobacco juice is fairly questioned. Mr. Garland said it was an insect and laid its eggs on the neck. These pustules are a little oval, while small-pox is the same; they ooze a yellow matter which is poisonous, and every sheep that comes in contact gets it. It is not mange, it is a parasite and is contagious. It inoculates all the sheep from the grass and pens.

Mr. Darnell. What do you dip with?

Mr. McDaniel. If I were to dip I would use tobacco juice. I have had thirty years' experience in the sheep business and made money at it, and there is much yet for me to learn. I have noticed this thing particularly and know how it works, Mr. Darnell, it is different from scab; it is the same species as small-pox. The small-pox is distinguished by oval eruptions, while this scab or mange seems to present an indenture. Scab comes from dirt, and that cracks the skin.

Cyrus T. Nixon. I do not think I have ever heard an essay read here that I agreed with in every respect. But I want to be careful in criticism. The essay is a good one, and if we do not altogether agree with Mr. McDaniel, it will cause us to think and read. In the first place he says this disease is called scab, but is similar to small-pox in men. As this disease becomes prevalent in the herd, can it be communicated from the atmosphere?

Mr. McDaniel. I think it will. The parasite is not in the odor, but it comes into the eyes and nose and creates disease.

Mr. Nixon. Do you believe the parasite is so that it will float in the atmosphere?

Mr. McDaniel. Yes, sir, I think it will. I took the matter from one of these sores and put it on my arm and it made a red spot. This thing of scab has caused me to sell every sheep that I have had, to be rendered up.

Mr. Ratliff. Do they die with this disease?

Mr. McDaniel. Yes, sir.

S. W. Dungan. Does this disease often occur in this malignant form? Don't we call mange the scab?

Mr. McDaniel. Yes, through ignorance.

C. A. Howland. The parasite is liable to remain in the shade and along the fences for a long time, and no sheep are safe running there for a year or two. Now I would suggest that we recommend when this disease is discovered among any flock of sheep, that the owner commence dipping them, which I know will cure them for the time being; and no sheep be brought on the premises unless they are thoroughly disinfected. I am satisfied that dipping them and disinfecting the

premises will eradicate the disease. I am opposed to selling them as soon as the disease appears. I believe they can be cured, but they will take the same disease again if they inhabit the same quarters, unless you put something there to kill the parasite.

Nixon Henley. At what time do you find this disease the worst?

Mr. McDaniel. The scab comes in the spring, but the eggs are laid all the time. The hot sun seems to generate the disease. Mr. Garland says they were laid by a bug similar in appearance to the June bug, and pass down through the wool. Mr. Balls, of Colorado, also wrote me that in his opinion it was a bug that laid those eggs. These parasites may be killed by dipping with tobacco and sulphur, but if the bug comes along again they will lay again, and will necessitate another dipping.

I. N. Cotton. I do not understand this fully. If this is a bug, why is not one flock exposed as much as another? This parasite must produce the bug again, then drop to the ground and go into the earth as a worm does from an apple, to come again. These are points we want to investigate.

C. T. Nixon. I have had a herd of sheep since 1880 in the neighborhood where the scab has been all around them, and they have not been affected with it. I do not believe in the bug theory.

Mr. Darnell. Mr. McDaniel's idea of the dipping question is correct. We should dip our sheep three times a year. I have dipped mine when the mercury was ten degrees below zero. This dipping will kill the ticks; there is no mistake about it. If you should dip them to-day, dip again in ten days, as the eggs hatch in ten days. For this purpose the water should be as hot as you can hold your hand in for a minute.

Mr. Cotton. Do you consider the scab contagious?

Mr. McDaniel. I don't think the mange is contagious. As soon as you see the scab on the sheep you can distinguish it from the mange. Those pustules that dent down are the mange, while those which raise up are small-pox. The scab is very oval. There is a peculiar odor about it; if you hold your hand above the sheep you will detect a hot fume raising from it.

Member. A gentleman came to me and asked what was the matter with his sheep, the wool was badly torn out?

Mr. McDaniel. That is it exactly. When the scab is in the outer wool they will turn around and pull out mouth-fulls of wool.

C. A. Howland. What we recommend here the community will take up, and we don't want to recommend anything that is not right in every particular. We don't want to sell cholera hogs, and we don't want to sell sheep that are affected with the scab. We want it understood that we do not sell diseased meat; that is what is doing our people an injury. We want the respect of foreign nations, and if we expect this we must be careful as to what kind of meat we sell.

Mr. Farquhar. We should select diseased sheep out, sell the sound and healthy, and keep the diseased ones until they get well.

Mr. McDaniel. We must be honest and not sell our sheep that are diseased, and keep the diseased under quarantine.

Mr. Thomas. I do not wonder that England and other foreign countries are doing something against us if we sell poor meat; we should not do this. I do not

think the breeders of sheep are doing this as much as some other classes of people. Let us educate the farmers up to a standard of honesty.

Alex. Hanna. I have never had any disease or scab among my sheep, though one year I had something like it. I dipped 1,500 only once and never was troubled afterwards; I used carbolic acid.

Hon. Cyrus T. Nixon read the following paper, prepared by Col. J. C. Byars, of Kentucky, on "Selection of Breeding Sheep:"

CARE AND MANAGEMENT OF BREEDING EWES AND LAMBS.

BY JAMES G. BYARS, SIMPSONVILLE, KY.

Mr. President and Gentlemen:

Having been selected by your committee to read a paper before this meeting with the privilege of selecting the subject, I will offer a few suggestions as the result of thirty years' experience and operation in the care and management of breeding ewes and lambs.

As a rule it should be the object of breeders of all classes of stock to select that which approaches nearest the type they wish to produce. The selection of breeding sheep is no exception to the rule. As the male is considered half the flock and the law of breeding "that like begets like," great care should be taken in the selection of the ram. He should always be pure breed and good individually. Many mistakes are made by using an inferior one, because he can be had for a few dollars, and while bought cheap he would be dear as a gift. I prefer breeding early, so as to have the lambs drop from the middle of January to the first of March. The ram should be used by the 20th of August and should not serve more than forty or fifty ewes. He ought not to run with the flock; but should be kept up and fed during the day and put with the ewes at night; the best results are attained by keeping him up all the time and letting one or two ewes to him, and when served, to be replaced by others. The advantage of this plan is that both ram and ewes are saved much unnecessary worry during hot weather.

The advantage of having the lambs come early is: First, they are stronger when dropped, mature and go through the first winter better and make larger sheep. They are weaned early, thus giving the ewes time to recuperate before the breeding season begins, and get in good condition for winter. Ewes, after being bred, should have good pasture and, as lambing season approaches, should be fed so as to be able to furnish a good supply of milk for their young.

If the weather is favorable I prefer to have them lamb in the pasture as they are apt to go off from the flock and are not so liable to be disturbed or confused, and are much less liable to disown their young. But if the weather is such that it is unsafe to leave them out, they should be sheltered, allowing plenty of room and dry litter and straw. As soon as the lambs are up and suck, they, with their dams, should be removed from the rest of the flock, the ewes should be fed generously on

wheat bran with oil meal mixed, to induce a generous flow of milk, and occasionally with a change of corn meal, which is better to keep them in good flesh. It is very important at this period that the lamb should have a sufficiency of milk to keep it in a thrifty, growing condition. A lamb stunted the first month will never recover from it. The ewes, in addition to a liberal supply of milk producing feed, should have access to grass, early sown rye or wheat, if possible.

When the lambs are three or four weeks old they will, with little encouragement, begin to eat wheat bran, ground oats and corn meal, with which a little oil meal should be mixed. My plan is to have a small inclosure adjoining the lot, with an opening, with perpendicular slats wide enough apart for the lambs to pass through. In this a trough of the proper height for the feed. I drive them in, fasten the entrance and keep them from a half hour to one hour. They soon learn to eat, and a few times will be sufficient, as they soon learn to go in and get ready for their feed.

They should be docked, if the weather is favorable, at from two to four weeks old.

It is my experience that lambs do better after the dams are shorn. I shear the first week in April, if the weather is favorable; if not, as soon after as the condition of the weather will permit. If it should be wet and cold, after shearing they should have access to shelter for a few days to get used to the change.

If ticks become troublesome the ewes or lambs should be dipped either in a decoction of tobacco or some of the dips manufactured for the cure of scab. I have generally found sulphur mixed with their feed effective in keeping them off.

The lambs should be weaned at four or five months old, or by the first of July. They should have good pasture grass, not too long, and there should be no high weeds, as by running through them after rains and heavy dews, their fleeces will be wet most of the time. They should have an old sheep with them in the pasture and be fed every day. I have found wheat bran, ground oats and cracked corn the best feed.

If the lambs are treated in this way, they will grow and be healthy. They will not be liable to lamb disease, or lamb cholera, as it is sometimes called, from which a great many die. By this plan a breeder will have a lot of lambs of which he will not be ashamed, and which he will take pleasure in showing his friends; besides, it will put money in his pocket.

My experience in breeding has been with scrubs, grades, Cotswolds and Southdowns; have had little or no experience with other breeds. It has been confined to Kentucky, about the thirty-eighth degree north latitude. The time of breeding, dropping lambs and shearing may not apply with equal force to a more northern or southern latitude.

DISCUSSION.

S. W. Dungan. This is an excellent address, good in every point, and something we can all profit by, if we will only remember and practice what the Colonel has told us. I move that this Society, through Mr. Nixon, return a vote of thanks to Mr. Byars for his able essay.

Carried.

John Ratliff. Don't you think that it is a little early to have lambs dropped in January?

Mr. Dungan. If you can have lambs come in January it is all right.

Mr. Nixon. If you are raising lambs for sale it is too early.

Mr. Dungan. One early lamb is worth three late ones.

Mr. Jones. Perhaps it is right in Kentucky. Bro. Dungan thinks it is all right here; but I think it is too soon. Every lamb that is brought through in January is a better lamb, but with me the loss has been so great that I prefer to have them thirty days later than the first of January in Indiana.

C. A. Howland. I can get from \$1.50 to \$2.00 more for a January lamb than I can for an April lamb, and that will pay for the expense of raising them. Bro. Dungan would rather lose an early lamb than save a late one. In this latitude and vicinity of Indianapolis you want to raise lambs for the early market. I find there is no profit in those dropped late. The hot weather comes on and I can not get them to look so well. The best policy is to have lambs dropped early and a warm place provided for them. We are just as liable to have good weather in January as in March. I will take my chances, and make more money than you who have your lambs to come later.

S. W. Dungan. It pays a man, when he embarks in an enterprise of this kind, to provide ample protection for his flock. It don't cost much to build a shed that will keep ewes during the lambing season with safety. One hundred and fifty dollars would build a commodious shed for an ordinary flock. March is the worst month in the year for lambs to drop. We usually have cold, rainy weather; the lambs become chilled, and often die.

Mr. Henley. I am rather a young member of this Association, and a young breeder. My experience is that it is best to have lambs come early; if they are dropped early one season the ewes come in early again. An early lamb will bring more money, are less liable to disease, and we should get them started to growing before warm weather sets in.

President Beeler read his annual address, in substance, as follows:

PRESIDENT'S ADDRESS.

Hon. Fielding Beeler, President of the Association, in his address stated that notwithstanding State legislation concerning dogs, and National legislation concerning tariff, both detrimental to sheep interests, there were evidently not a few determined to persevere. At present wool growing was under a cloud, but he saw no sufficient reason yet to quit the business. The close margin that a wool and mutton grower now has to work on renders it necessary, however, that the shepherd use his best skill and judgment. He recommends that they sell all their culls and keep none but the best. By so doing they can command remunerative prices. The practice of raising grain exclusively on a farm is ruinous, and besides, we are meeting heavy competition in our exports of wheat, etc., and in consequence beef and mutton are commanding higher prices. He thought that twenty sheep could be put on each eighty acres in the State and made to pay for themselves without

care. We have 22,000,000 acres of land in the State, or say 16,000,000 available which means an easy possibility of 4,000,000 sheep, or 3,000,000 more than we now have. Mr. Beeler also recommended the establishment of branch societies over the State, one in each county, with a view to disseminate knowledge and promote the industry.

The following resolution was offered requesting the appointment of a committee to consider the propriety of holding a "Sheep Shearing Festival:—"

Resolved, That a committee of three be appointed to consider and report to-morrow, upon the propriety of holding a Sheep Shearing Festival in this State during the coming spring, with authority to report necessary rules and regulations for the same.

Pending the adoption of the resolution, the following remarks were offered:

Cal. Darnell. I think there is no one in this house but what would profit by a public sheep shearing. Have it understood that the sheep will be sold before or after the shearing is done. I think we ought to encourage the raising of sheep with heavy fleeces.

Cyrus T. Nixon. This resolution itself does not necessarily bind the Association, but simply refers it to a committee with authority to report to-morrow, as to holding a sheep shearing festival. I am in favor of the resolution. The wool of the State of Indiana, taken fleece by fleece, is not so heavy as the wool of surrounding States. They have such festivals in Ohio, Michigan, Illinois and Kentucky, and they are beneficial, while in Indiana we have not held such exhibitions. We want to see Indiana coming up alongside with her sister States in this respect, and we have the wool and men here to do it. I think it would be best to have the sheep either at the Exposition Building or at the Rink, and sell them there.

The resolution was adopted, and a committee appointed consisting of Messrs. Darnell, Thompson, Henley, Cotton and Farquhar.

On motion of J. L. Thompson, Messrs. Thompson, Ratliff and Tomlinson were appointed to draft resolutions regarding the tariff question.

On motion of Mr. Robe, Messrs. Robe, Quick and Howland were appointed a committee on programme.

Prof. Latta, of Purdue University, not having prepared an address as per programme, spoke briefly, as follows:

Mr. President and Gentlemen:

I confess it almost takes my breath at being called upon to address you this evening, as I am no off-hand speaker at all. I had noticed some time ago I was to deliver an address before you at this time, but afterwards found out that it would be almost impossible for me to do so, and have nothing prepared. I was called into the city to-day to attend the meeting of a committee of the State Teachers' Association for ornamenting school grounds, and have been busy engaged with that. I come here this evening as a learner. I feel an interest in your work and especially all that is being done by the associations that our farmers are engaged in. A few things I know, and am trying to learn more all the time. The inside work at the University occupies most of my time, consequently I do not get time

for outside work, as I would like. My time has been so fully occupied that I could not undertake to prepare a paper for this meeting, but I am glad to help all I can. We have no sheep and do nothing in a practical way for the sheep and wool interest at the University, and are not doing much with stock in general, a fact which I very much regret. Measures are on foot to improve this condition of things, and I hope we can, in this at least, have samples of improved breeds of different classes of animals, and to some extent carry on experimental work which will be a help to our State. I feel that so far as agricultural education is concerned, the education of the eye has much to do with it. The professor may lecture on characteristics of breeds, the history of breeds, and circumstances which go to surround their origination and adaptation to the particular climate and soil, and handle the subject well, and after all that, if we have the breed before the student, they become acquainted with their characteristics much more rapidly than we can instruct them in the class room, but we have not the facilities for it at present. I do not like to address an audience, unless I have definite facts. I feel I have little to say, but I am glad to meet you, and I would be glad to see you at Purdue University, to criticise us. I hope that Purdue University may be a help to you and other farmers of the State in giving a practical education.

Mr. Dungan. I feel the force of what Prof. Latta says in regard to live stock at Purdue University. I am willing to donate some animal if others would do the same. I have no doubt the University would appreciate it when the time comes. We are all interested in our agricultural institutions, and I feel that we should express our interest in some way.

Mr. Howland. I think that is in the right direction; the University is not in a condition to do much unless it is by donation. I like the address of the Professor. If the sheep men can furnish him stock to go ahead it would be the means of learning our boys something they would not get in any other way.

Mr. Harkless. I like the gentleman's remarks. If we had some stock there to experiment with it would be profitable. I am very much in favor of something of that kind.

Adjourned until 8:30 o'clock A. M.

MORNING SESSION.

FRIDAY, June 1.

Convention met at 8:30, with President Beeler in the chair.

On motion, a committee was appointed to draft resolutions in regard to the death of John M. Bray, consisting of Mr. Dungan, Mr. Farquhar, and Mr. Henley.

Dr. Brown being present on invitation, spoke as follows:

I always feel an interest in the sheep question. In my childish life I began the life of a shepherd. I was not the only one, the great man David did, too. In my boyish days we divided the work: My father took care of the horses, William and Gabriel took care of the cattle, I took the sheep, and had care of them for ten

years at home, from the time I was a small boy ; I did not have anything to do with other stock. My youngest brother, George, took care of the hogs. My taking care of the sheep did not lead me in the line of politics. They are a type of a quiet and peaceable life, generally, except an old ram in my flock, with big horns, which sometimes gave me trouble. The question in this country of the supply of wool is one of the greatest questions of the age. Now, we only need actually two things in this world, food and clothing, that is the limitation. The bread and meat producers take charge of one department. We necessarily need clothing, and clothes in this climate being principally wool, we could not dispense with it without inconvenience or injury to health. Wool is indispensable to comfort and health in this country ; it is really the best cloth material we have, in a sanitary view, so far as comfort is concerned ; there is no question about it. The truth is, the hotter the climate gets the more demand for wool. You see this illustrated in those rolling mills where the men wear woolen clothes winter and summer. Common sense teaches them this ; where the heat is 120 degrees they wear flannel altogether.

The supply of wool in this country is a grave question. Within my recollection we have built up and made great progress in the manufacture of our own wools. In my early days the wool manufacturing was done at home. When cloth was to be made extra nice it was fulled. The first Sunday coat I ever had was a home-fulled coat. In this country the supply of wool is an important question, and is perhaps the pivot on which the wool-growing interest turns. It is a narrow lane, and we must go straight on that question ; if we veer right or left we get off the track. There is always difficulty when a train gets off the track. If you increase the price of wool to any considerable extent by duty, you cripple the manufacture and encourage the tariff on manufactured woolen goods, or what is the same thing, reduce on the raw material, and if you do so, then you break down the home supply of wool, and as soon as you do this the manufacturers don't know how much they will have to pay for foreign wool, of which the supply to this country and Northern Europe must needs come from Australia. From my best information Australia is capable of producing all the wool the world would consume. It is a continent of itself and a climate where sheep require no protection, in winter, growing and taking care of themselves the whole year round on the native pastures, and only require looking after in shearing time and keeping flocks separate. They have the advantage over Texas and New Mexico as to climate and they don't have to protect their flocks against wild animal, and Australia is also clear of dogs. Australia originally had no flesh-eating animals, a great continent without a tiger, bear, or other carnivorous animal when discovered. The largest animal inhabiting that country was the kangaroo. They raise sheep there naturally, yet the wool was not of the best quality heretofore, but they are improving their wool by letting in importations of American and European stock.

I know that there is one thing connected with their wool which is largely developing. When at Washington we had several twenty-pound packages of Australian wool sent us as samples, and done up very neatly. We did not have time then to examine them, but sent them away, putting them down in the basement until we got more time to investigate them. It was in the winter when we received them ; it got warm about May. The women were putting up seeds, and they complained

that something got on them, and they came to me to know what it was that bit them. I sent the Entomologist to look it up, and he reported a new species of fleas, with horns. The fleas were as large as flax seed, the horns sticking out in front, and thousands of them in the wool. I went to work with carbolic acid, and quarantined the cellar, and finally succeeded in killing them off. If they had got loose in the city they would have driven Congress out. Our Indiana and Ohio wool growers have some competition in the Western plains. On those plains there are immense fields for sheep growing, and they can grow wool cheaper than you can here. There will be competition so long as buffalo grass lasts, but this grass don't bear short nipping as sheep nip it. They told me when I looked at it four years ago that when it was once gone it never would set again. A few years of pasturing with sheep must eat this grass out. It may be we will find some other grass for sheep pasture on those plains that will do for grazing sheep. The best sheep grass is the buffalo grass, it is very nutritious, and they do well on it. If we can protect the wool growers against Australian wool, we can stand the competition on the plains, because they don't pay as much attention to their sheep as you do. Sheep raising, especially wool growing, will be a profitable business if we can keep our own from being crushed out by Australian competition. The tariff of 1867 was an ad valorem duty of six per cent. It was between the wool growers and manufacturers, who agreed upon a plan of tariff that should be fair between the wool growers and manufacturers, fixing the price so as not to cripple either manufacturer or wool grower. On that agreement it was communicated to a committee of manufacturers and wool growers. There was some complaint among the manufacturers that we gave more benefit to the growers than manufacturers. What we want is to so steer between the rocks as to hold the manufacturers in check, and maintain a good price to the wool growers. The manufacturer now in the reduction so made, has a specific and not an ad valorem duty which gives the manufacturer no reduction on the wool manufactured, but a change of the tariff from specific to ad valorem leaves the wool growers in bad repute, and under this tariff the Australian wool men come in unless we reduce the price five cents."

Mr. Mitchell. Are not those Australian wools better than ours?

Dr. Brown. They are said to be stronger than ours. For fine quality you have to get European or American wools. The wool that is used in making those fine worsted goods comes from this country. Australia don't produce that kind of wool. If that kind of wool does come, some of our sheep have gone there. The sheep breed splendidly in Australia. This matter of tariff has got to be handled right; a little greediness on the part of the wool growers and manufacturers will spoil both. Those foreign men would like to break down both, they would like to manufacture the wools and sell us the goods, and be independent; but we had better regulate this ourselves. This country is well adapted to wool growing, though it requires some care to keep our sheep through the long winters. At the price for seven years past we can well afford to raise wool here, and the manufacturer can afford to buy and manufacture it, and the men and women who wear the goods can afford to buy it. Everything has been satisfactory and should not be disturbed.

Mr. Nixon Henley, of Morgan county, read the following address on "The Best Sheep for Wool and Mutton."

BEST SHEEP FOR MUTTON AND WOOL.

BY NIXON HENLEY, OF MORGAN COUNTY.

In canvassing this subject I find there are several matters to consider, some of which I will mention as a preface to the few remarks I may make.

First.—The location, geographically.

Second.—The kind of land upon which to keep the flock.

Third.—The number to be kept in a flock.

I shall try to address my remarks to the common farmer, or the farmer of common or ordinary circumstances, those who own or control farms of from sixty to one hundred and sixty acres. If I were going to keep sheep upon land that was flat and not well underdrained, I should keep the close, short-wooled kind, some of the Down families. My reason for doing this is from the fact (as I have gleaned from observation and experience) that they are hardy and better able to withstand the diseases common to sheep kept upon that class of land. But if I were going to stock a farm of hilly, broken land, with soil not very productive and of a sandy or gravelly nature, I would invest in the reliable and hardy Merino. It will take care of itself where it seems as though larger varieties would almost starve. Indeed, we might almost call them scavengers, during the dry, hot months subsisting almost entirely upon the coarser weeds found in the fence corners and on the hill sides. And next, if I were stocking a farm of what is commonly known as sugar tree and walnut soil, capable of producing fifty or sixty bushels of corn, twenty to thirty bushels of wheat or two and a half tons of hay per acre, I would select the famous Cotswolds as a class of sheep susceptible of being forced to heavy weights, both of carcass and fleece. And I am about persuaded that they are the only class of sheep under the present prices of wool and mutton that can be kept upon land that rates at \$50 or \$75 per acre. I believe it is conceded by nearly all sheep breeders that the long wools can not be kept in large flocks as successfully as the smaller breeds. And as most farmers conduct what might be termed a mixed husbandry—keeping hogs, cattle and sheep—I shall, as a general rule, say: Keep the long woolled, large breeds of sheep. And I would say, also, do not try to keep more than can be well cared for, for I know of no kind of stock which repays the farmer better for a little extra care than does a flock of sheep. I will here try to give you some figures showing the relative value of short and long-wooled breeds of sheep from my own experience. In the first place I will make an estimate on the average long wool:

Amount of wool, 8 lbs., at 20 cents per lb.	\$1 60
Weight of carcass, 120 lbs., at 4 cents per lb.	4 80

Total	\$6 40
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Upon the short wool I have this experience :

Amount of wool on an average sheep, 5 lbs., at 25 cts. per lb.	\$1 25
Weight of carcass, 90 lbs., at 4 cents per lb.	3 60
Total for wool and carcass	<u>\$4 85</u>
Leaving a balance in favor of long wools of	\$1 55

If we make this estimate on a flock of twenty head at \$1.55 a head, we have \$31.00. In making this estimate, I have said nothing about the increase of the flock by lambs, but will state here that I realized from 75 cents to \$1.00 more for my long wool lambs than I did for my Downs or Merinos, of which I had some each, and we might here place this to the credit of the long wools. In a flock of twenty, a careful farmer should save at least fifteen lambs, which, at an advance of 80 cents, makes \$12.00, which we will add to the \$31.00, making \$43.00, to give to the credit of the long wool flock, which is quite a nice profit over the short wools.

I fed six ewes, three Cotswolds, one Merino, one Southdown and one half Merino and Southdown, with the following results: The three Cotswolds were ewes which had lost their lambs, the same is true of the Merino and the half breed, the Down had no lamb. They were fed alike. The Cotswolds weighed 167 pounds, and sheared 12½ pounds of wool. I sold the three at 4 cents per pound, or \$6.68 per head, 12½ pounds wool at 21 cents per pound, \$2.62, which added to the value of carcass makes \$9.30. The other three weighed 103 pounds, average, and clipped 7 pounds of wool. For the three I received 3 cents per pound, or \$3.09 per head; 7 pounds of wool which I sold at 21 cents per pound, or \$1.47 per head for wool, which added to the \$3.09, gives us \$4.56 per head for the short wools. Now for the difference, \$9.30 minus \$4.56 leaves \$4.74 in favor of the large sheep.

Now, gentlemen, I have tried to give you the results from experience and observation, and I am convinced that the long wools, or at least a preponderance of their blood is the most profitable sheep for the average farmer to keep where we only keep a few and sell to the drover or butcher, where, as a general rule, the largest sheep command the best price, and I have only to refer you to any of our lists of live stock prices as given in our papers as proof that the heavier sheep commands the best prices. I see the market price of sheep as given for the Union Stock Yards January 26, is as follows: 120 lbs. and upwards, \$4.40@4.75; 100 to 115 lbs., \$4@4.25; 80 to 90 lbs., \$3.50@3.80.

Now, fellow-farmers, I have given these few thoughts and experiments with the hope that if I have said nothing to benefit you it may elicit some remarks that will benefit the meeting. Asking you to pardon my weak effort, I will conclude for the present.

DISCUSSION.

J. W. Robe. Were your sheep all fed together?

Mr. Henley. Yes, sir, all together; fed on corn and oats.

Mr. Howland. Is it your opinion the long wool breeds will produce more than short ones in proportion to the amount of food consumed?

Mr. Henley. Yes, sir.

Mr. Mitchell. Suppose you were to feed the crosses, how about it?

Mr. Henley. If you want to produce a lot of muscle and lean meat you had better feed to make it; you have got to have a carcass to build on. If I want a cow to milk well I want one that will eat food that will produce it, and the same way in producing fat. Our success depends on feeding proper food.

Mr. Dungan. According to the argument of Mr. Mitchell and Mr. Howland, I am surprised that they would object to men raising anything but the Jerseys or Ayrshires for beef cattle; they don't consume one-half as much as the Poll Angus, Herefords or Short Horns. Mr. Mitchell would be the last man to raise our Jerseys for beef cattle. So it is with the big sheep. I contend, as Mr. Henley has just remarked in his address, that the larger we get animals the larger price they will command. It may be that they will consume more food, yet they will perhaps bring twice the amount of money.

Mr. Mitchell. The Southdown is certainly in the lead as regards meat.

Mr. Privet. My Shropshires average 150 pounds, and Southdowns 140 pounds. It is not always the largest sheep that is the best mutton sheep.

Mr. Henley. In reply to my friend, Privet, I have no experience with those larger Downs. I took my prices from the papers. The heavier we get our sheep the better, as then they sell best. I am not a buyer and drover, but I am selling at home. Drovers are necessary factors in life. My experience for twenty years has been that a sheep weighing from 150 to 200 pounds commands the best price. I get more wool and over one half cent difference in price. In addressing myself to the farmers who produce this wool, I wish to say that I think we want a larger class of sheep than the Southdown. Those other sheep are getting to be an excellent factor in our mixed husbandry.

Mr. Howland. As regards the Downs, I am of opinion, sir, I can take a certain number of acres, and pasture those acres with Downs, and in comparison with the Cotswold, I will make more mutton than he can with the Cotswold; and I will also undertake to raise one-fourth more lambs from the Southdown than he can from the Cotswold; and, I can, with the same amount of grain, produce more fat on the Southdown wether than he can on the Cotswold wether. That is my experience. Of course the Cotswold has a larger frame, but when he comes into market, before intelligent people who understand what mutton is, I will outsell him with Southdown sheep.

Mr. Farquhar. As far as getting into market is concerned, there are but few who take mutton direct to the city market. The general farmer sells to the buyer in the country, where there are small flocks. If you take your sheep to the country market you get more for large carcasses than small ones. In the East the Southdown brings the best price. In the country they don't discriminate as in the Eastern markets. The Southdown is, without doubt, the best mutton sheep. In regard to raising lambs, I think we can raise as many from the Cotswold as the Southdown, and they are better mothers to raise lambs. From a flock of fifty each of Cotswolds and Southdowns last year, the Cotswolds averaged one and a half per cent. of lambs and the Southdowns ninety-five per cent.

Mr. Privett. I raised one hundred per cent. of Southdown and forty or fifty per cent. of Cotswold. The Cotswold lambs are weak and require more attention. The

Southdowns are active, and the lambs get up readily. The Cotswold are slow about getting up and are liable to freeze to death in cold weather.

Col. Beeler. -What time of year do you have your lambs to come?

Mr. Privett. The first of February.

The election of officers was taken up and resulted as follows:

President—Cyrus T. Nixon, Marion county.

Vice President—I. N. Cotton, Marion county.

Secretary—I. J. Farquhar, Randolph county.

Treasurer—J. L. Thompson, Grant county.

Executive Committee to consist of the President, Vice President and Secretary.

On motion of Mr. Darnell a vote of thanks was tendered the retiring President, Secretary and Treasurer, for their efficient services to the Association.

I. N. Cotton, of the Committee on Shearing Festival, made the following report:

Mr. President:

Your committee appointed on the resolution in regard to holding a sheep-shearing festival, would recommend the holding of a sheep-shearing festival during the month of May, 1884, under the control of a committee of five to be appointed by this Society, to have control and make the necessary rules and regulations for the same, to be held on the State Fair grounds.

I. N. COTTON,
JOHN L. THOMPSON,
ROBT. MITCHELL,
NIXON HENLY,
I. J. FARQUHAR,
C. F. DARNELL,
Committee.

DISCUSSION.

Mr. Darnell. I have been advocating this festival for some time, and I am sorry the members are lukewarm in this matter; we don't want to take hold of this, unless we are all in favor of it. Nearly every meeting we have had men on the floor trying to explain how to shear sheep. A man can learn more in five minutes by seeing, than he can in a month by talking. We might hold our meeting at the Exposition Building in May, instead of June, and have an admission fee charged to help pay expenses, but the Association pass in free; the Association hold one day, and the next day before noon have the shearing and in the afternoon the sheep can be sold to the highest bidder or at private sale, if desired. I can not see where any great expense is going to come in; several of us now have promised five dollars to carry on this work. I am satisfied a great many will be interested in this and come with their sheep.

Mr. Dungan. While I do not wish to oppose any measure that would contribute to the success of our Association, yet I have very grave and serious doubts as to

the advisability of this movement. It is something entirely new with us here, and so far as attracting a crowd or receiving any funds in this way, I doubt seriously. The people in the city prefer going to a theater than to a festival of this kind. Mr. Darnell spoke of having an expert to do the shearing; in my judgment this expert should not come out of this Association. All the sheep brought will be shorn, and if Mr. Thompson undertakes to shear all he will have a serious time of it.

Mr. Darnell. He need not shear all, only two or three if he wants; there will be several experts on hand.

Mr. Dungan. Another reason for opposing this festival, some of our wool growers live at quite a distance from here, and I doubt whether they will go to the expense to bring their sheep. If we undertake it I would regret very much to make a failure, but we do not know these things until we try it. I would not throw a straw in the way if I felt this would be a success.

Mr. Darnell. Tell me where the expense is going to come in.

Mr. Dungan. I suppose it would be in renting some building and advertising.

Mr. Darnell. No sir; we would not have that to do.

Mr. Dungan. Most of the men belonging to this Association are practical wool growers who are busy in May on their farms and among their flocks. It does seem as though it would be difficult to attend.

Mr. Darnell. We come here in June, anyhow.

Mr. Dungan. We would have to spend at least three days for this.

Mr. Cotton. I wish we could have a good expression on this subject. I do not see where much expense will come in for such festival more than attending a regular meeting.

E. J. Howland. There is certainly no better way to advertise than to begin right here for holding such a shearing under the auspices of this Association. As to the amount given in premiums, that would be but a trifle. Let us have a diploma, for when stock is indorsed by this Association a diploma would be worth more than dollars; it would go far towards advertising, and by adopting this diploma instead of premiums the expense would be but trifling.

Mr. Prickett. It looks as though we might have a sheep shearing, as other States, which might be both interesting and profitable. It would be a good place to advertise our sheep, and if we have one I will bring my portion of the sheep.

Mr. Thompson. It has been suggested that I do the shearing. I would be willing to show what little I know, but I am not willing to shear any given number. As to bringing sheep, I could do my part. There are difficulties, however; we will want to bring our best in May, and those sheep we will want to show at our fairs. It would really be a little late to shear in May; it might do to have it in April. In holding this shearing there are several things to be thought of, and it is a good way to learn. I can not see as there will necessarily be much expense attached to it.

Dr. Conkell. Does an expert shearer use a stool?

Mr. Thompson. We shear on a platform about knee high; we then set it up in front of us, and commence at the brisket and shear down to the bare place in front of the flank to the right hind leg, then turn right around and shear the belly;

when the belly is sheared we commence shearing to the neck and down the left side. I am certain this is the right way to shear; learned under the tuition of an Englishman.

Question. What is an average day's work?

Mr. Thompson. That depends on the sheep. Take the Merino that will shear from twelve to twenty-five pounds, we can not shear many; not more than from four to ten. We hear of men shearing from forty to fifty Merino; it is not the kind I raise.

President Beeler. I would like to see this thing succeed if we undertake it. There are hardly enough here to find out what can be done.

Mr. McGaughey. We desire to get as full an expression here as possible. I propose that we offer a good premium for the swiftest and neatest shearer. A man in our neighborhood is an expert, and I would like to see him brought into competition. He is an Englishman, and will shear from twenty to thirty in a day. I think we could derive much benefit from a shearing.

Mr. Dungan. If we go into that we would create as much excitement as anything else. Mr. Farquhar and myself were at Chicago last season, and the hall was almost crowded when those butchers killed on time. I think that would be an interesting feature of the shearing, and I would be in favor of giving a premium to the person who shears a sheep in the least time with neatness and smoothness.

C. A. Howland. If you think you can establish this and sustain it, you have got to work. The officers of this institution will have the greatest part of the work to perform.

Mr. Darnell. I do not want this laid on the officers, but on the wool growers. It is of as much interest to the members as to the officers. It would be of more benefit to us if there were only one sheep there to shear than to stand and hear a man explain for hours. I am favorable to offering a prize.

Mr. Thompson. I am struck with the expert shearing and prize; that the Society may not be under any embarrassment, let me say I will not enter in contest with those outside of the Society. If I do, they might think the Society would be bound to respect me.

Mr. Cotton. Let one prize be offered outside of the Association.

Member. Perhaps those prizes should be in cash, and not diploma, outside of the Association, and we offer a diploma inside the Society.

Mr. McGaughey. Mr. Thompson suggests the prize of the Association be cut out. I think this is wrong; let every one have a chance to the contest, and let it be outside of the Association to award the premiums, and we get the benefit of their work.

Messrs. Cotton, Darnell, Nixon, McGaughey and C. A. Howland were appointed a Committee on Sheep-Shearing Festival.

Mr. Thomson. Heavy fleeces in the East are the principal thing they are looking after, and have been for years. In this State it is different. Let it be the most valuable fleeces. It will be encouraging the people in the right direction. It is not alone the weight of fleece or of carcass, but that which will bring us the most money. We want to encourage the common farmer as well as the breeder.

Mr. McCarty. I am favorable to a shearing exhibition, and an exhibit of wool. I am not favorable to offering a premium for heavy sheep.

Mr. Howland. We are also going to pay a premium for the best shearing, but my amendment is in addition to this.

Mr. Thompson. The first arrangement was giving the prize to the sheep alone and not to the shearing, and we must not bring that in.

Mr. Dungan. While we would like to be liberal and offer a premium for the shearing and flesh, I will say that our treasury is getting low, and will doubtless have additional expense at our next meeting, which reminds us of strict economy in this matter.

Mr. Darnell. A man may receive three or five dollars, but if he has a diploma he will value it ten fold more.

Mr. Howland. These diplomas will hardly cost five dollars. There is no one here who would not value a diploma in excess of five dollars. All colleges have their diplomas, and I would rather go out from this Association with a diploma, than from any college. If there is any class of people in this State that is capable of wearing a diploma of any merit, it is right here in this sheep branch.

Mr. Rahma. I think there should be a liberal premium offered on wool to help pay the people for shipping their stock here. If the society can do anything in this it can be done by liberality in money and premiums. I am in favor of offering premiums in some cases, and in others diplomas.

On motion of E. Howland, the sum of twenty-five dollars was ordered, which was to be placed in the hands of the "Shearing Festival" Committee for their disposal in holding such exhibition.

The committee appointed to draft resolutions respecting the death of John M. Bray made the following report, which, after remarks, was adopted:

Whereas, We are pained to learn that John M. Bray, of Deming, Hamilton county, Ind., a member of the Indiana Wool Growers' Association, while on his way to attend the present annual session of said Association was instantly killed in the sad and unfortunate railroad disaster at the White river bridge near this city; therefore, be it

Resolved, That we deeply regret the loss of so good a man and valuable member of our Association, and that we hereby extend our sympathies and condolence to the stricken family and relatives of the deceased.

Resolved, That a copy of these resolutions be spread upon the journal of our Association, a copy sent to the city papers for publication, and a copy sent to the family of the deceased.

S. W. DUNGAN,
I. J. FARQUHAR,
N. HENLEY,

Committee.

REMARKS.

S. W. Dungan. I remember that I have his name on the Treasurer's book, but have not had the pleasure of his acquaintance. I understand that Mr. Henley is acquainted with him personally; perhaps he might say something in regard to our deceased brother.

Nixon Henley. I am somewhat acquainted with our friend who recently met with this sad accident. He visited my place not long since. He was a man of undoubted character, unusually careful in his conversation, and his honesty and integrity were above reproach. As to good judgment, he was an excellent breeder of stock, especially that of short horn cattle, long wool sheep, Poland China and Berkshire hogs. I recollect a few years ago he offered as a premium to the *Indiana Farmer* a short horn bull, which came to our town. In the loss of Mr. Bray to the wool growers we have sustained a great loss in the accident at Broad Ripple. I feel the loss keenly, having had the acquaintance of the gentleman perhaps more than some others.

Mr. Beeler. I have been acquainted with him for twenty years. I have sold him sheep. He has been at our fairs, and have found him to be a quiet, modest gentleman, with but little to say in public bodies. I was highly impressed with his honesty and integrity, a pure and excellent Christian at home.

E. J. Howland. I visited the scene of the wreck at Broad Ripple, yesterday evening. A number of persons told me while there that he was one of the best men in Hamilton county. I am not acquainted with him, but I learned that there can be no exceptions taken to his life. I think we should try to emulate his character.

Convention adjourned until 1:30 o'clock P. M.

AFTERNOON SESSION.

Meeting met at 1:30, President Beeler in the chair.

On motion, the Society took up the sheep-shearing question for discussion.

Mr. Farquhar. I move that we have our Sheep-Shearing Festival on the 10th of April.

Mr. Cotton. I move to amend by saying the first Tuesday and Wednesday in May.

Mr. Howland. I am in favor of putting it on the last Tuesday and Wednesday in April. We want to have it before or after corn planting.

Mr. Thompson. I find shearing in April the sheep do about as well as any other time, and it is a time we will have more leisure to attend to it. We can not be here in May or the latter part of April.

Mr. Dungan. I do think those gentlemen are entirely too early. Suppose we have such a spring as last spring was; it would be exceedingly dangerous for men to think of shearing sheep unless you use all the blankets on the place, and take extra care of them. We should consider that we have cold rains, and possibly would be very disagreeable for us to meet on the Fair Grounds. I think a happy compromise in this matter would be to defer it until the middle of June, and if you consider it as I do you will find that I am right. The farmers will all be through planting corn, and want to take a little leisure; and this will be a pleasant place for recreation, and the weather will then doubtless be pleasant and more agreeable than earlier in the season. You will probably bring forward this argument that you want to shear your show sheep early. You want to shear them in March or first of April if you have fine show sheep.

Mr. Cotton. If we put it for the first of April, there will be but very few come out. I favor Mr. Dungan's proposition of putting it in June.

The 5th and 6th of June was decided on as the most suitable time for holding the public shearing.

Mr. Robe, of the Committee on Programme, made the following report:

Mr. President and Members:

Your Committee on Programme beg leave to report the following:

"Cotswold Sheep; Their Origin, Together with Their Adaptation to the Wants of the Sheep Raisers of Indiana." S. W. Dungan.

"The Shropshire Downs; Their Origin, Together with Their Adaptation to the Wants of the Sheep Raisers of Indiana." J. L. Thompson.

"Merino Sheep; Their Origin and Adaptation to the Wants of the Sheep Raisers of Indiana." C. T. Nixon.

C. A. HOWLAND,
J. W. ROBE,
S. R. QUICK.

Mr. Dungan, of the Committee on National Convention, made the following verbal report:

"We have not been able to make out a written report. I move that this matter be laid on the table until a future session of the wool growers."

Pres. Beeler. We should take some action toward doing something for the fat stock show. We should have an expression from this society.

The Committee on County Organization of Wool Growers made the following report:

Mr. Farquhar. I move that in consideration for courtesies shown this Association by the Secretary of the State Board of Agriculture, he be made an honorary member for life. Adopted.

Mr. Heron. I thank you, gentlemen, for your kind appreciation of my services.

President Beeler. We tried last year to get the Legislature to give us an appropriation to help us in our work, but failed to get it. The Horticultural Society gets an appropriation of \$500. Our interests are seemingly as important and I see no reason why we should not receive similar aid; the swine breeders took some action in this matter and desired that we do the same.

On motion, Messrs. Farquhar, Cotton and Howland were appointed to labor in connection with other industrial associations to memorialize the Legislature for aid to carry out the objects of the Association.

Mr. Cotton offered the following resolution indorsing the holding of a fat stock show in 1884 as encouraged by the State Delegate Board of Agriculture, which was adopted:

Be it resolved, By the Indiana Wool Growers' Association in session in their annual meeting of January, 1884, that they indorse the movement put on foot by the State Delegate Board of Agriculture to have a fat stock show in 1884, and will give it hearty support.

I. N. COTTON,

Chairman of Committee.

Mr. Dungan. I would like to inquire of the wool growers if any of them can suggest the name of an expert for the coming State Fair.

Mr. Robe. An expert for any one breed?

Mr. Dungan. Yes, sir.

Mr. Thompson. If you get a man for an expert for one particular breed, he won't do for the others.

Mr. Dungan. If you go to the St. Louis Fair you will find they have an expert judge for all classes and breeds; one man goes through the entire list.

Convention adjourned.

INDIANA WOOL GROWERS, 1884.

SEMI-ANNUAL MEETING—SHEEP-SHEARING FESTIVAL.

The members of the Indiana Wool Growers' Association held a regular semi-annual meeting in one of the rooms at the Exposition Building on Wednesday, April 23. There was an average attendance, but it was evident that the majority came to attend the Sheep-Shearing Festival, not thinking the meeting was to be held in connection therewith. After some discussion it was agreed to go into regular session. Accordingly President C. T. Nixon took the chair and called for the programme. As the meeting was unexpected the programme that had been announced could not be followed, and so it was continued over to the next meeting, to be held in January, with but one change, viz.: that Mr. I. N. Cotton will take the place of Mr. Nixon as essayist. The President called upon a number of those present for their experience with sheep during the past winter. They replied as follows:

J. E. McGaughey, Marion county. My sheep have gone through the winter in an excellent manner. Twenty of my ewes had twenty-eight lambs, of which I lost eight; the rest are all-right. I think my sheep are somewhat troubled with ticks. I wintered them about hay stacks, without any other shelter, till lambing time, when I put my ewes under the shelter of a roof. A neighbor of mine with eighty ewes saved but thirty-two lambs, and I attribute his loss to the entire absence of shelter for his flock. I keep a mixture of Cotswolds and Southdowns. Last year they averaged nine and three-quarter pounds wool at a clipping; do not think they will do quite so well this spring. Some of them have lost a little wool in spots, from what cause I do not know.

J. G. Byars, Simpsonville, Ky. My flock of Southdowns did as well last winter as I ever had any sheep do. They are in excellent condition and thrifty. I allowed them to run out in favorable weather, but sheltered them at the lambing season and in stormy weather. The lambs came mostly in February. I always breed for that month, and think it the best, all things considered. About ten per cent. of the lambs were lost. I have found some ticks upon my sheep and will dip them as soon as shorn.

Thomas Nelson, Parke county. I have one hundred mutton sheep and one hundred last year's lambs and breeding ewes. They have been out in the weather all winter, except at nights in lambing time, and have done well. They are kept in three separate flocks, consisting of lambs, ewes and mutton sheep. In breeding, I placed a Merino buck with fifty ewes last fall, allowing him to run with them two days and keeping him out two, alternately, for twenty days. My lambs come the last of April, and so far I have lost but one. I gave my sheep rough feed through the winter, and on the first of March began feeding grain. I will shear early and put my mutton sheep on the market in June and July. The wool average from my flock will be about eight and one-half or nine pounds. The sheep have been considerably troubled with ticks, which I think is due to the wet weather. This sheep shearing festival is, in my opinion, a good thing. We had one in our county once, and it awakened a great interest in the business and quite a demand for sheep. The reduction of the tariff had a very depressing effect upon the wool business. The bill introduced in the House by Mr. Converse, of Ohio, was about the right thing, but was brought forward at the wrong time. It should have been withheld till after the defeat of the Morrison bill, which I consider certain.

Mortimer Levering, Tippecanoe county. We have four hundred sheep, and keep a register of all sheep, both ewes and lambs. All dates (of births, etc.) are properly recorded, and by referring to our books we can tell the history of any animal in our flock. Only sixty per cent. of our ewes got with lamb. At breeding we put the ram with the ewes at night only, and it may be owing to this fact that so many of them failed. About ten per cent. of the lambs were lost. The Shropshires have more twins than Cotswolds. Our new Shropshire Association promises well. There is a great interest in this class of sheep, and the success of the society seems assured. Next year the Association will exhibit some sheep at the shearing festival, if one is to be held.

Jacob Whitesell, Marion county. I have cross bred Cotswolds and Southdowns. They were wintered on corn fodder, and came out well, although they are somewhat troubled with ticks.

S. R. Quick, Bartholomew county. Some of my lambs came in January and February; of these I lost forty per cent., and the rest are doing well. Other lambs came in last of March and first of April; of these I saved ninety per cent., and they are in better condition than the early ones. My Cotswolds are losing their wool, which is due, I think, to the ticks, of which there are more than common. The outlook for price is not good. Buyers in our county are offering to engage wool for 16@17 cents a pound. Last year we obtained 22 cents, but this was partly the result of an organization by the farmers of the section, who sold their wool in bulk and thus got an advance of two or three cents for it. We can not raise sheep for wool alone at 17 cents, but for wool mutton, with a fair price for the latter and 17 cents for the wool, the business can be made profitable. As a preventative against ticks I feed my sheep sulphur with their salt. I leave the salt and sulphur mixed, where they can get at it at all times. This year I neglected the use of sulphur and my sheep have been troubled with ticks for the first time in several years.

• *Mr. Byars.* I use the same remedy and with satisfactory results. In Kentucky

we are offered 20@23 cents for our wool, which seems to be four or five cents better than your offer here.

——, *Indianapolis*. I was four years in the sheep business in Texas. I started on a small scale with 125 head of Merinos. Four years after I sold 600 sheep at \$4.25 a head. Last year was very severe on Texas sheep, as there was very little pasture. My lambs came about the first of March, and I lost a good many. I lost \$600 on my flock. One man lost \$1,000 in lambs. As they never feed their sheep, the Texas wool growers always suffer great loss when grass fails, as it did this year. It is best to keep mutton sheep here and wool sheep in Texas. The sheep business there has heretofore been better and easier than the cattle business, but now the former is rather depressed and not so surely profitable.

J. L. Thompson, Grant county. The cold weather coming so suddenly last fall made the past winter unusually hard on sheep. I lost more sheep and raised less lambs than generally. The dogs got away with a good many sheep. Usually our farmers get 26@27 cents for their wool. The tariff reduction has had a bad effect, and this year I don't think we can get more than 20@25 cents per pound. The decrease in tariff and the recent uncertainty in regard to legislative action have both conspired to lower the value of wool. In Grant county, many sheep raisers sold out last year and many more will do so this year. They are discouraged and have given the business up. I am by no means discouraged, though undoubtedly the outlook is not as promising as it might be, and I shall continue to raise sheep as long as I can see hope in the future.

Col. Fielding Beeler, Marion county. The past season was unusually hard on sheep, and I lost a great many lambs. My ewes don't seem to have enough milk. The grass last fall didn't seem to have any substance to it; it was watery and washy and caused a deal of scouring. The outlook is discouraging. The lowering of the tariff has had a damaging effect, but it is not alone to blame. The increase in wool production of Australia and in our own county has had much to do with it.

Mr. Thompson. Every man ought to keep a few sheep whether he realizes anything on wool or not. They will pay for themselves in other ways. To keep a great many at a profit he must make something on wool.

Uriah Privett, Decatur county. We need not be discouraged yet, though the prospect is not as bright as it might be. I think the shearing festival will have a good effect in stirring up the interest in sheep.

Col. Beeler. I doubt whether sheep as a specialty on high priced Indiana land will pay, but every man ought to keep a few as gleaners.

C. T. Nixon, Marion county. Much has been said about ticks. I think it is not always ticks that cause the difficulty. A neighbor of mine found hundreds of lice on his sheep. Another found the same pests, which came, he thought, from some wool sacks he had obtained from the West. I think the wool falling off is caused by these lice, rather than by ticks.

E. S. Butler, Ridgeway, Ohio. My breeding sheep are Merinos. My losses this year have not exceeded one per cent., although the losses in the State have been comparatively heavy. As a remedy for ticks I sprinkle sulphur on affected sheep, being careful to select a dry, warm day for the purpose.

Mr. Harkless, Henry county. My success has been better this winter than usual.

My young sheep have some ticks which I will destroy after shearing by dipping. I breed to have lambs come in February. I feed under shelter and give bran, corn and oats, always feeding the ewes well just before lambing, in order to give the lambs a vigorous start. My sheep last year averaged eleven pounds of wool. To prepare a dip for ticks, I make tobacco ooze in a tub, making it strong enough to kill a tick, but not strong enough to make a lamb sick.

J. Q. Prigg, Henry county. There are a good many ticks on my sheep which came from some new ones I bought. I use prepared carbolic dip in a coal-oil barrel and rarely have any trouble with them. Last fall was a bad preparation for winter. The grass was washy and not nutritious. I have lost forty per cent. of lambs this year; the rest of my sheep are in good fix.

TOBACCO DIP.

Mr. Byars. I use a tobacco dip for both sheep and lambs.

Mr. Privett. I use one pound of stems to three gallons of water for the dip, make it as hot as the sheep can bear it, and dip soon after shearing.

C. A. Howland, Marion county. My sheep are full of ticks, although I dipped them soon after shearing last spring. It is good policy to make the dip strong.

Col. Beeler. You can kill lambs by having it too strong, as I know by experience.

Mr. Levering. I dip every year, and don't think I can well make the dip too strong. I have a regular tank and dip the whole sheep in it, holding the hand over its nose.

I. Thalman, of C. E. Geisendorff & Co. Indiana as a wool-growing State now ranks about as high as any other, and by agitating the subject it may be made to take the first place. Some States raise finer wool, but for medium and medium long, Indiana can not be beaten. Our wools are growing in favor everywhere. Ohio and Pennsylvania wool growers generally take better care of their sheep than those of Indiana and so have cleaner wool, but no better than we can produce with the same care. The prospect is that the prices will be about the same this year as last. I don't think the tariff will be changed, and nothing else is likely to change values, so far as can be seen now. As to what kind of wool to raise, I would not advise any particular one. Styles are constantly changing, and every new style creates a demand for some special grade of wool. We can not predict the styles and so we can not say what grade of wool will be most in demand at a given future time.

CROSS BREEDING.

Robert Mitchell, Gibson county. I have heard several mention that they kept cross-bred sheep. This thing of crossing is a bad plan. There is system to it. You get one cross, and then what are you going to do? It is impossible to keep your flock on the same grade all the time. You are continually getting out of the line, on one side or the other, and can have no certainty of breeding just the kind of sheep you desire. The only way to be entirely certain, is to use only thorough-breds for breeders.

Mr. Thompson. That is all right for the professional breeder, but for the common farmer it is impossible to keep a pure blooded flock and at the same time satisfy the demands of the manufacturer of wool, who wants medium wool. I cross Cotswolds upon Merinos and then breed their crosses to Shropshire rams. By so doing I get a good medium wool and a fine sheep.

Mr. Howland. I think crossing brings the best results, but I would always use a thoroughbred ram.

Nixon Henley, Morgan county. If, in breeding, you have a fixed type, you know beforehand the character of your lambs, and by judicious management you can so direct results as to increase the size or better the fiber, or in any way you desire approach an ideal. Crossing, on the other hand, destroys all certainty of results, and is besides difficult to control or guide.

J. O. Pursel, Marion county. Last year I housed and fed some thoroughbred Cotswolds and other sheep that were a cross between Merinos and Cotswolds. In the spring the butchers readily bought the cross-breeds, but would not take the thoroughbreds at any price. I think this is a pretty strong argument in favor of cross breeding.

DELEGATES TO CHICAGO.

The following were selected delegates to represent the Association at the meeting of the National Association to be held at Chicago: Robt. Mitchell, S. R. Quick, Mortimer Levering, C. A. Howland, C. T. Nixon.

Meeting adjourned.

SHEEP-SHEARING FESTIVAL.

Thursday, April 24, was devoted to the shearing of sheep, awarding of premiums, etc. There were twenty-seven sheep on exhibition, representing flocks in Michigan, Kansas, Kentucky and Indiana. The attendance was not large nor were there as many sheep as there would have been in more favorable weather, but, considering the wet and cold weather, the shearing was a success. At any rate, the Association so regarded it, and they propose holding another next year.

AWARD OF PREMIUMS.

Awards were made as follows:

Best fine wool sheep, H. D. Collings; second, C. T. Nixon.

Best long wool sheep, first and second, Jacob Whitesell.

Best medium wool sheep, J. G. Byars & Son; second, Wm. F. Churchman.

Best fine wool fleece, C. T. Nixon, weight twenty-six pounds; second, H. D. Collings, weight twenty-seven pounds.

Best long wool fleece, first and second, Jacob Whitesell, weight fifteen and eleven pounds.

Best medium wool fleece, J. O. Pursel, weight sixteen pounds; second, J. G. Byars & Son, weight seven and one-quarter pounds.

Swiftest and best shearer, S. F. Brown, Lawrence, Ind.; second, B. F. McCalmont, Chrisman, Ill.; third, Theodore Howard, Gallaudet, Ind. The men sheared three sheep each, a medium wool, long wool and fine wool, in the order named. Brown sheared them in 11 min. 20 sec., 16 min. 8 sec. and 58 min. 18 sec., respectively; McCalmont, 12 min. 12 sec., 22 min., and 56 min.; Howard, 30 min., 23 min. 10 sec., and 1 h. 40 min.

C. E. Geisendorff & Co.'s premiums of blankets, robes, etc., went to the winners of premiums on sheep and to shearers, as offered. They also bought, at liberal prices, the greater part of the wool shorn.

The "best and greatest number of sheep" were brought by Jacob Whitesell, who accordingly receives the When Clothing Store premium of a suit of clothes.

Vajen & New, hardware dealers in this city, offered a pair of sheep shears to the best amateur shearer. Awarded to H. D. Collings.

George Merritt & Co., offered one dollar per pound for the best scoured fleeces shorn. Only one was given them, that from J. O. Pursel's medium wool sheep, which was a cross between a Merino and Cotswold. The fleece weighed 16 pounds two ounces off of the sheep and 7 pounds scoured. Mr. Merritt considers this the finest fleece he ever saw. It was of even length all over the sheep, and scoured remarkably well.

INDIANA SWINE BREEDERS' ASSOCIATION.

The eighth annual meeting of the Indiana Swine Breeders met in the rooms of the State Board of Agriculture, Indianapolis, January 30, 1884, at 1:30 o'clock p. m., with President Richard Jones, of Bartholomew county, in the chair.

The meeting was opened by the calling of the roll by the Secretary.

The minutes of last meeting were read and approved.

On motion of Robert Mitchell, of Gibson county, the following committee, consisting of R. Mitchell, Dick Jones, and W. C. Williams, were appointed to wait on the Governor and invite him to address the convention at some time during the session.

President Jones read his annual address as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the Convention:

In submitting this, my annual address for 1883, we beg to be indulged for a few moments while we look back to the organization and progress of the Swine Breeders' Association of this State.

This Association was organized January, 1877, and like all other new enterprises, met with but little encouragement. But a few determined breeders, feeling the great importance of such an organization, stood firm, and the interest and attendance increased rapidly. We labored under many disadvantages, prominent among which was our time of meeting, which was held at the same time of the annual meeting of the State Board of Agriculture, causing great confusion, and compelling us to secure some other place to hold our meetings, which we found very inconvenient. But under the suggestion of Alex. Heron, Secretary State Board of Agriculture, an arrangement was effected by which all industrial meetings are being held separate, which is one grand step in the right direction, and much praise is due Mr. Heron for his untiring efforts in bringing about such an arrangement. And to-day, we can say the Swine Breeders of the State are well organized and in good working order. The annual meetings are looked forward to with great interest. The papers and discussions brought out at these meetings are of great value to the feeders and breeders who attend them. And we can say, to-day, that swine breeding is one of the leading industries of the State.

We find from the statistical report for the year 1883 there was slaughtered in Indiana 1,165,296 hogs. Now, suppose these hogs to average 200 pounds gross,

which we think very low, and that the price per hundred weight was for the year, \$4, gross, giving us the sum of \$8,322,368, which is more than double the amount realized from cattle, or is one-third more than the amount realized from cattle and sheep. But this will fall far short of the hog product of Indiana. As there are many thousand hogs shipped out of the State and slaughtered in other markets, while our home markets will not justify shipping hogs from other States here to be slaughtered. And we think it but fair to say that Indiana produced at least 2,000,000 hogs in the year 1883, hence we say the hog product will compare favorably with any other in the State.

We also find that Indiana raises more hogs than any other State according to her size. But the question for us to consider to-day is not who can raise the greatest number of hogs, but who can raise the hog that will go to market on the smallest amount of feed, and bring to his owner the largest profit. This is a question of great importance, and we hope will be fully discussed during this meeting.

The prices realized during the current year have been very satisfactory, not fluctuating, but increasing almost all the time; consequently the feeders have realized very fair profit, while the breeder of improved swine have sold all they could raise at good prices.

We do not feel like closing this address without urging upon the swine breeders of this State the importance of a fat stock show during the present year. As has been said, no State produces more hogs or better hogs than does Indiana, and we know of no better way of showing to the world our facilities for producing pork than through the exhibition of fat stock at those fat stock shows. Then let every swine breeder of the State resolve that if an opportunity is offered he will bring out a good exhibit.

We can not afford to stand still and let other States capture the laurels which belong to Indiana in producing beef and pork. The Delegate Board of Agriculture, at their last meeting instructed the State Board to hold a fat stock show during the present year, and we hope this Association will express their wishes fully on this subject during this meeting.

W. C. Williams, D. L. Thomas and W. E. Jackson were appointed a Committee on Finance.

The Secretary and Treasurer made their reports, which were referred to the Committee on Finance.

Mr. Jackson, of the Committee on Holding a National Swine Breeders' Convention, reported, when, on motion of Mr. Thomas, the committee was continued and instructed to endeavor to effect arrangements for the holding of the National Swine Breeders' Association at Indianapolis, in 1885.

Mr. Barker, of the committee to secure legislative aid toward liquidating expenses of the Association, reported that nothing had been affected, and, on motion, the committee was continued to labor for such an appropriation.

E. J. Howland. I have just this to say in regard to this question. There was considerable feeling in favor of making an appropriation for all these industrial organizations. The bill I introduced during the last session of the Legislature named seven or eight of them. You will find that the citizens of the little towns in different parts of the State are opposed to it. To accomplish anything, I would

like to have some one originate it who lives remote from Indianapolis. There is something which causes them to work against anything that emanates from here. The most that can be done is to correspond with members and such men as you think would favor anything of the kind, and have them use their influence.

On motion of Mr. Jackson, the initiation fee and annual dues were reduced from \$1.00 to 50 cents for this meeting.

Mr. Emsley Wright, of Marion county, not responding with an essay on "The Characteristics of the Jersey Red," as per programme, spoke briefly as follows:

I am sorry friend Mustard has told you what he has. I am a farmer by trade, and followed it ever since I was a boy. I came into this county the 22d of December, 1821. My father died when I was but eight years old, but I have managed the farm to the best of my ability, and have been in the hog business for over forty years. I have raised all kinds of hogs except the Essex and Suffolk, and now been handling the Jersey hogs for six years; before that I knew nothing of them, but supposed they were the old-fashioned Elm Peelers. By experience, I have found them to be a very desirable breed. I seldom sell any to the butchers, but am shipping all the time; so extensive are my sales that I have orders that I can not fill. I have had runts of this breed to fatten up and do well; weighing at seven months old 250 to 300 pounds; have had Chester White and Jersey feeding at the same time, and my experience is that the Jerseys will take on flesh faster than the Chester White. The Poland China hog is a fine breed, but they do not, in my estimation, come up to the Jersey Red as a general rule. They don't quarter out quite so well. A large tail is something I do not like, which is a characteristic of that breed. I have had crosses, but they are mongrels and don't pan out like the Jersey Reds. I think their meat is whiter than some other breeds. Since I have had my farm stocked with Jersey Red I have not had a sick hog in my herd, while my neighbors' hogs are dying all around me. Perhaps I feed mine differently from others. I give them plenty of milk, almost as much as they can drink, and keep them fat. I can fatten them from the very birth up, without difficulty. They will drink swill and eat corn earlier than any breed of hogs I have ever had any experience with. I will take a Jersey pig and any of you may take a Poland China of the same age and I will beat you every time. They are industrious and enterprising when they first come into the world; you can not confine them in the bed in the summer; they will be out in spite of you. They are the largest eaters I ever saw; they never know when they have got their fill. They will lay down and grunt and eat again. I am satisfied they make more meat than any other breed; this partly accounts for the extra amount of food which they require. I am again going to try a couple of Poland China sows with the boar that I have; they make an excellent cross, yet they are mongrels. I feel free to say that I would not want to trade for any other kind, because I can make more money and meat at less expense. They are a hardy breed of hogs as they have a great deal of hair to protect them from the cold, and they shed it in the summer.

Mr. Reveal. Mr. Wright is an excellent talker in public, and I am very glad he is talking to represent the Jersey Reds. My hogs show for themselves.

Mr. R. R. Shiel, of Marion county, read the following paper on "The Best Hog for the Farmer:"

THE BEST HOG FOR THE FARMER.

BY R. R. SHIEL, OF MARION COUNTY.

I thank you for the honor of being invited to speak to you upon this occasion, and to show to you what hog, in my opinion, will sell for the most money when fully fattened. I think the white hog will, and I will proceed to give my reasons.

I have been engaged in the stock business for eighteen years, and during that time have sold hogs in nearly all the Eastern markets, and always found the white hog the most ready sale. For the last three years I have been engaged in purchasing hogs for over twenty of the largest Eastern packers at Washington, Baltimore, Philadelphia, New York, Boston, and most all the packers in New England, and my instructions from them all are to take a white hog, and many of them have given me orders whenever I can buy white hogs at about the same price other hogs sell at, to buy them at any time without orders, the quality being as good, and some of them say pay five or ten cents more for them. No doubt many of you will differ with me, as you all have your favorite hog. In order not to make any mistake I have written to nearly all my Eastern customers, and they all say they prefer a white hog to any other, price and quality being the same. Charles H. North & Co., Boston, say they much prefer the white hog, also that they shrink less from gross to net, and that the meat is sought after. Niles Brothers, of Boston, say the white hog will sell for twenty-five cents per hundred more. These parties pay the highest price for the heaviest hogs in this market and Chicago. They have been buying hogs in the West for many years. E. G. Reyenthaler & Co., one of the oldest houses in Philadelphia, say the butchers all prefer the white hog. O. Stahlnecker & Son, and Alberton & Wilson, of New York, say they prefer the white hog, that the meat is whiter and will sell more readily. The difference can easily be seen when a white hog and a black one are dressed and hung up in the market side by side. When I am assorting hogs for Eastern markets I invariably take a white hog in preference to any other, when the quality is not quite so good. I do not pretend to say the white hogs are easier raised or fattened than others, but I do say they will sell for more money in any market, quality being equal. I would advise farmers to raise them if they can, as well as others; the hog that sells for the highest price is a Philadelphia; they want a hog weighing from 260 to 300 pounds, and light bone, thin hair and blocky built; they pay twenty-five to forty cents more per hundred for this kind than other markets. I think eighty or ninety per cent. of the Suffolk or Burks will sell for Philadelphias, when fully fattened, while there won't over forty or fifty per cent. of the Poland China or Chester Whites, and not one per cent. of Jersey Reds that can be fed long enough to make them Philadelphias; in fact they are the poorest selling hog that comes to any market. They are too coarse every way, in hair, bone and build. No one will buy them unless

at a low price. All of you breeders except the Jersey Reds, have done great good in improving the stock of hogs in the last twenty years, and much more good can be done.

John Taylor, a large packer of Trenton, N. J., says the producers in the West should build shelter to protect their hogs from the weather; that in New Jersey, where they have protection and bed their hogs with straw and change the straw at least once a week, they are not near so liable to disease, and that they will make more pork out of one bushel of corn than they do in Indiana, Illinois or Iowa out of two, which I believe is true. This is an important thing to look after. The loss in one year, by not having the protection, would build shelter that would last for many years. You ought to keep your hogs always fat, and raise a stock of hogs that will do to market at any age, so that if there should any disease break out in the neighborhood you could market your hogs and thereby save thousands that take disease, and by the time your hog is eight or ten months old, you have a hog that weighs two hundred and forty to three hundred pounds, which is heavy enough for any market. Twelve or fourteen months is as old as any hog ought to be before marketed. Again I thank you.

DISCUSSION.

Mr. Shiel. There are two sick hogs of the Jersey Red come to the market to one of any other kind. They will spoil any hog community.

Mr. Wright. It does strike me from the reading of the paper that the gentleman has been down in Kentucky working on the scalawags. He has never seen a hog of mine or he would judge differently. I can show him just as fine hogs as he ever saw anywhere. In New Jersey it is not so cold as in Indiana; if they have to build sheds in New Jersey for their hogs, they haven't got the kind of hogs we have. I have never made a shed for mine yet, and they are in better condition than my neighbor's, because they are a hardier breed. The gentlemen contends for the superiority of the Chester White, and ships white hogs only. If he has been shipping hogs as long as he says he has, the parties for whom he is buying have employed the wrong man.

Mr. Shiel. I am sorry I have stirred up a hornet's nest. In the course of these remarks I tried not to tramp on anybody's toes. He says he can show me from his herd just as fine hogs as I have ever seen. The place to find this is at the stock yards. About two years ago a man brought some Jerseys in and they were the finest lot of that breed I ever saw, but he got out and has never raised any since.

W. A. Macey read the following essay prepared by A. S. Gilmore, of Greensburg, Ind., on the "Characteristics of the Berkshire and Management of Herds."

CHARACTERISTICS OF ENGLISH BERKSHIRE SWINE AT THIS TIME.

BY A. S. GILMORE, OF GREENSBURG, IND.

Head short and fine. The males show more of a masculine appearance around the head, and coarser in general appearance. Face dished, and broad between the eyes. Neat and smooth in jowels. The eyes are of a bright hazel color, and are very expressive. Ears small and erect; in some instances inclined a little forward. Neck short and very full, and finely arched. Very smooth and full in shoulders and broad in chest, and of good depth. Back broad, and well sprung ribs, rump being nearly level with it. Well filled down in twist. Body of good length and depth, well rounded and straight along the sides and underline. Hams deep, broad and well rounded, and so thick as to cover the sides of the body well when standing behind the animal. Legs are fine and very strong, of moderate length, generally set rather wide. Feet are generally small and neat. Tail fine and well set, with a handsome curl near the rump. Bone generally fine and very strong. Offal very light in comparison with weight of carcass. Hair most generally fine and soft, with no bristles. Skin is even, thin and smooth. They are animals of very fine spirits, quick in movement, and have a very fine style of carriage. They are very attractable and easily trained. The most fashionable color is pure black, with white feet, white tip of tail and a little white about the face. A white splash, or a spot of buff color, on other parts of the body is no sign of impurities. Their finely-marbled meat make them the most preferable hog for pork for family use, and are generally considered the best hog for the summer curer. Their great constitution and vigor make them the choice hog for shipping to foreign countries alive. The Berkshires attain good size—weight from 400 to 800 pounds. The mothers are most excellent mothers; very attentive to their young, generally saving good litters. Pigs are very active and easily raised. They are most excellent grazers, and can be placed on market with a very small amount of grain when running on good clover pastures; are excellent feeders, and mature early. Our experience in handling Berkshire swine has been very satisfactory.

MANAGEMENT OF SWINE.

The first and most important thing in the management of swine is to have suitable buildings. Our buildings are all built with shed roofs, front facing the south; also, fronts are composed of doors, which stand open all the time, except in cases of stormy days. Sun and pure air are two of the most essential things for the health of swine. We never keep a hog that can not be furnished with a comfortable house. Our houses are all floored with two-inch lumber. We always bed our houses with fresh straw once a week, and sometimes oftener in rainy weather. We

have the majority of our pigs to come in April, May and June. We feed our sows very light diet for about three weeks before farrowing time, and also for six weeks afterward. We always rear our pigs in clover, timothy and blue grass pastures; never confine them to close lots. After they are from six to eight weeks old we commence to feed them soaked corn. Have small troughs placed in pens for that purpose. When pigs are four months old we separate the males, and put them in smaller lots. We divide them according to their ages. We always make corn the base of our feed; for change of diet we use mill-feed, oats, potatoes and artichokes. We never feed a pig intended for breeding purposes on milk or cooked feed. Our experience is that pigs fed on milk and cooked feed and garbage are not fit for breeding purposes. The only thing we use for a health promoter is lime, ashes and charcoal, hauled from lime-pits; with this we mix two bushels of salt to the wagon load. We never allow our hogs to be around straw-stacks under any circumstances; if they are in the field where the pigs graze we fence them in.

Dick Jones, of Bartholomew county, read the following essay on the

CHARACTERISTICS OF THE POLAND CHINA.

The Poland China hog is a production of our own, and can not prefix the title "imported" to himself. He is a complex cross of the common hog, Poland, Byefield, Irish Grazer, and Russian or Russian China. The breeders of Ohio were the producers of the Poland China. Many of the first were white, but by careful breeding the color was changed to black, as also the symmetry was improved, and we have the large, smooth, fine, stylish Poland China, second to none. As to characteristics: Early maturity, great weight, docility, good breeding qualities, grazing proclivities, rapid flesh making, ability to support weight, and hardiness, are some of them. In point of early maturity, no other hog can be put on the market as early and at so great weight. I have seen them marketed at six to eight months of age, weighing 250 to 300 pounds, and of the best quality. They yield a greater per cent. of lard than any other hog. Their docility is marked; and the mother always takes good care of her young. The Poland China is susceptible to cholera, but almost entirely free from skin diseases, being deep through the chest and of great lung power.

DISCUSSION.

Mr. Dye. I would like to know from what the Polands derive their name?

Mr. Jones. I refer you to the first volume of the Central Poland China Record. There is little doubt about all those hogs as to their origin. Many years ago persons coming to this country brought a few hogs with them and those hogs generally took the name of the country from which they came. I think you will find a full history of the Poland hog in the first volume of the Poland China Record. If I had had more time I would have embodied it more fully in my essay.

I. N. Cotton. Don't you find it in Coburn's works?

President Jones. Yes, sir; some of that alluded to is taken from Coburn's works.

Mr. Dye. In the *National Live Stock Journal* I notice a committee of three men were appointed to investigate this matter. They say the name originated in Butler or Warren counties, Ohio.

Dick Jones. The name don't amount to anything, really. For instance, the Jersey cattle; we know that they derived their name from the Island of Jersey. Whether this Poland hog is any particular stock or not, we do not know. I received a letter not three months ago from a friend in Missouri, asking me to give him in detail the difference between the Poland China and Magee. The difference is about the same as that between a white man and a negro.

Mr. Sailors. We have met here to learn from the experience of others. I have been trying to breed hogs for twenty years. I am very often asked if I am shipping. I am breeding to get a good stock. I would like to know why the color has changed. From fourteen to sixteen years ago they were more white than black, but they have changed materially in color. I have asked what causes this. My impression is, that it is a mixture of Berkshire with the Poland. I have had the Poland China, Irish Grazer, Essex and one litter of the Jersey Red. I have never found a breed of hogs equal to the Poland China. The Berkshire is a good hog and many fine specimens have been reared from this breed. We have thirty-two pigs, which at four months old weigh 132 pounds each. We meet here to find out what is the best hog to raise, both for market and breeding purposes.

President Jones. I think that any breeder in this room can take the Poland China and in five or six years make him almost white. The original color of the Short Horn cattle was white, but now they are nearly red. You take the light color of the litter and breed back, and in a few years they will become black.

Emsley Wright. I have had some experience with the Poland China. I do not think we can make it a black hog all the time, yet we can materially change its color. There are many who are engaged in breeding hogs who are prejudiced against the Jersey Reds, and can not make anything of them. As I said awhile ago, I find this breed superior to all others I have ever tried. I wish some of you who are so prejudiced would come and see my herd, and I feel satisfied that you would be convinced of their superiority. You come here and remain during the meeting and go home after discussing these various topics without arriving at any more of a definite conclusion than when you came. In regard to the color of the Jersey hogs: you take one of a dark color and you have dark pigs, but sometimes one comes light; they will vary in color.

W. A. Macy. I do not like the Jersey Red, notwithstanding the gentleman showed some very fine specimens of this hog at the fair.

James Mustard. In regard to the inquiry of my brother breeders: The Poland China breeders have got this business down to a science; we can breed to order. If a man wants a curly hog I can breed them; I can breed a strictly black hog if so desired. We have got the black hog because the color was made for us, and we keep selecting from it. If we want smooth hogs and fine hair, we breed from fine, smooth animals. I used to do that. A successful Poland China breeder can breed to any point desired if he gets his order in time, even to the color, hair and tail. If you notice in our show rings you will find that every single one has come from good specimens. Like begets like, and there is where we get our colors from fami-

lies. We can breed a small ear, up or down; we can breed a good ham, but it is the hardest to select good breeders of hams. We can breed a good back as well as other points, but we must select our specimens to do this.

W. A. Macy. I know there is an inclination to discard the idea of there being any Berkshire blood in the Poland China hog. In 1835 and 1836 there was an infusion of Berkshire blood in making up the Poland China hogs. In bringing this about we had a sow, the grandmother of the Black Bess tribe, that lived until she was about eleven years old. The last time she farrowed she had two pigs, one was black and the other white. We can get them spotted, if we want. I am confident there is Berkshire blood in the make-up of the Poland China hog.

D. L. Thomas. One reason we have black Poland China is that their tendency to mange is less than among others. White hogs are more liable to mange than black. Black skin will stand heat better than white, the same in hogs as in people, and we are breeding black and getting rid of the white on account of the mange; also fancy and the name. I wish to ask Mr. Shiel if there is any matter of taste and fancy as regards color among buyers.

Mr. Shiel. In the market for which I am buying white holds the preference. If you see a piece of meat from a white hog and another from a black hog, nine times out of ten the white meat will be more ready sale than the other; it is a prettier meat. They claim in dressing a hog that more or less roots of the hair will remain; the black bristles will stick up and show where the white won't. I have parties in Massachusetts and Rhode Island, for whom I am buying, who instruct me to buy white hogs whenever I can get them; they are more ready sale and satisfy their customers better than black hogs. There is no reason that the black hog is superior to the white, unless the white can not stand the severity of the weather. If the Indianapolis market were to have one half white hogs, we would have ten to fifteen cents better prices than we do have.

Mr. Johnson. I am a breeder of the Chester White. I think the mange is noticed quicker on the skin of this breed than others, which makes the difference referred to by Mr. Thomas.

Mr. Tomlinson. I turned some Berkshire hogs along with some white ones on clover. The white ones became covered with sores and died, while the black pigs went through all right. My experience is that white hogs running in clover in wet weather will get sore behind the ears, while the black ones do not.

Mr. Shiel. A small per cent. of the hogs which come to market are white. I can almost always tell from the appearance of the hogs where they come from, in fact, I can tell the kind of hogs before I see them. In buying hogs I am told not to buy Kansas City hogs and to look out for St. Louis softs. I shall not buy any more Kansas City hogs, as they are more or less covered with sores and boils. I think there is something in the country or climate which causes it. When I was in Boston last year my customers told me not to buy Kansas City hogs. In Southern Indiana they breed the same old hog they did many years ago; they are small at eighteen months to two years old, but when you get them up they are a fine hog and hardy.

W. A. Macy. Will a hog that is half white and half black sell as well as a white one?

Mr. Shiel. The spotted hog sells better in some localities than the white, because they have small bones and lots of body.

W. A. Macy. With the firm of Forte & Sadler, of Knightstown, the black and spotted hogs sold and attracted much attention. I think this means that some of us Berkshire and Poland China men are a little more for fancy than the market demands; however, the spotted hog is a little more tender than a solid black.

Mr. Thomas. Do the best hogs come in from the West?

Mr. Shiel. No. In preparing meat for the European market, hogs that have been whipped and beat have to be thrown out. When hogs have been beaten there are bruises and welts on the body, which render them unfit for sale. They have a man to watch this to see that not a mark or spot is on the meat. The Kansas City hogs have little sores under the skin, which render them unfit for shipment. Take one of those old-fashioned hogs, two years old; he has got a light bone and his entrails are not as big as your fist. If you make those little hogs weigh three hundred pounds they are two per cent. better than other hogs, because they are fully matured.

Mr. Thomas. We need such a man as Mr. Shiel in his business. We want all the information out of him we can get. I hope the gentleman will give us the benefit of his experience. A friend has written to me from Kansas City that there is a kind of eruption or breaking out among the hogs there. I do not know the nature of it.

James Mustard. As to the cause of this breaking out among the hogs in Kansas, I believe I can solve it. They in Kansas, to a great extent, pen their hogs up on dry ground where there is no grass, feeding them on corn from the very first, until they are put on the market. The dry corn is no doubt the cause of it. We feed our hogs root crops and allow them to run on clover. The Kansas hogs are kept in lots as dry as dust and are there all the time.

Mr. Sailors. Eastern men like white hogs, but clean them differently from us. They want to go through this new process of burning. I have been shipping hogs for eighteen years. A fine lot of hogs, no matter what breed, will always sell. I have never been able to get a ham that I wanted on the Chester White. In the Poland China you have a long body and short neck, which is very desirable in the make-up of a hog. There is too much ear on the Jersey and Chester White. I can sell a black hog as well as a white one.

Member. The men who breed black hogs have been trying to bring them to the front for years. I will say that you can get hams on the Chester White as well as on the black.

Mr. Shiel. I repeat, the white hog is decidedly the hog for the Eastern market, especially in Boston and some other eastern cities. They sell higher in those markets than the darker breeds, and if they are equally as healthy and easy to raise, and make equally as many pounds with the same amount of corn, I would raise white hogs all the time.

Member. As to the mange on the white hog, there is nothing in that. I think the Poland China at three months old will keep a little fatter, and at six months old I can beat the black hog every time. As to color, there is no cleaner color than the white.

Mr. Mitchell. This discussion puts me in mind of a distillery. They were paying ten cents more per bushel for white corn; after they got all the white corn they wanted, the yellow was then worth ten cents more than white. It was fluctuating back and forth all the time. It is so with the hogs, especially the white. We grow them, and we must raise some black. The white hog, according to my experience, is not so hardy, and is subject to sickness and disease. I had a start of them, but they did not prove satisfactory in our locality. I much prefer the black hog. I do not think it has as good fattening qualities as some other kinds; but our interests are different, and localities varied. Some keep one way and some another, and yet all get good returns. For a medium hog, and one to take in the average, we want the Berkshire.

Sec'y Macy. I advise farmers to get the spotted hog. I have letters from a friend in Illinois who wants spotted hogs, and I have shipped him that kind. They are the best feeders, and the farmer who wants to raise hogs for the farm, the spotted hog is the kind; yet the breeders and fashion have imposed that penalty to make it black. It is the same with cattle. There is a strong inclination to head all the herds with roan bulls. There are among the Poland China some as fine hogs as any in America, while a few men hold to the best strains of Chester White and Essex.

Mr. Mugg. The feeling of some breeders get touched up when on this subject. It is not right. Every man has his own views on this subject. I expect five to one of the Poland China breeders in the house have a preference. Ten years ago the Berkshire seemed to be ahead. The Poland China breeders began to work towards bringing their interests up, and they have succeeded admirably. Let us keep working together for greater success. If the Jersey red men can make them the best hogs, let us encourage them, and stick to our breeds.

Pres. Jones. This is a State swine breeders' convention. It is not the object of this association to advance any particular breed of hogs to the detriment of others. Every man has a voice here. If there is any one who breeds the old "racer" he has a right to speak.

Mr. Williams. Every breeder deserves credit. I am a Poland China breeder. If any other man has other kinds, let them bring them up to the State Fair, and success to him. Let us do our best.

Mr. Thomas, of Rush county. The color alone and supply rules the demand. Those Eastern men are shrewd business men, and so are those cattle men of Kentucky. A few years ago some thought that the red cattle were going to take the country, but the roan is coming in demand stronger than red, simply because the roans please the fancy, and they bring fancy prices. It is the same with the hog market in the East.

Robert Mitchell, of Gibson county, read the following paper:

ADVANTAGES DERIVED FROM USING ONLY THOROUGH BREDS FOR
BREEDERS, AND DISADVANTAGE OF USING CROSS
BREDS FOR BREEDERS.

The hog is the only domestic animal seemingly of no use to man when alive, and was, therefore, as may be presumed, designed for food. Inhabitants of warm countries, and all the Mahometans, at present reject the use of pork for food. The Romans, however, considered it as one of their delicacies. The reason is very obvious why it was forbidden to the Jews. Their whole ceremonial dispensation was typical. Filth was held as an emblem or type of sin.

All the varieties of this animal originated in the wild boar, which is found in most of the temperate regions of Europe and Asia. It is smaller than the domesticated animal, and usually of a dark gray color, approaching to black. Our domestic hogs are to a great extent artificial productions, their most valuable qualities having been communicated to them by a kind of cultivation. Thus, breeds of hogs have been produced far surpassing in size and capabilities to take on flesh than the hog in its wild state. These marked changes from the original type of the race have been produced by human care and management. The extent of this change varies much with different breeds, and its importance is testified to by the high prices commanded by those animals in which the fattening qualities are most strongly marked. The expense of feeding and caring for an animal of good breed is but little more than that required for a very inferior one. A farmer may raise a horse that will command one thousand dollars in the market, or one worth less, and spend nearly the same on either animal. The advantage of using full blood or pure bred animals, of all kinds of live stock, is certainly a question that needs but little to support its claims before an intelligent audience; yet it is very necessary that the advantages to be gained by the use of pure bred animals be advocated, as the great mass of the farmers do not attend such meetings as this. So it is necessary for those engaged in the breeding of fine stock to meet in such conventions and give out such facts as will be the means of setting others to thinking and acting. Probably there is no class of domestic animals that has been so much improved by the use of good blood as swine. But it must also be kept in view that there is a constant tendency in the race to return to the condition of Nature. The maintaining of good breeds thus becomes a struggle between Nature and Art, and the art is one that requires peculiar skill and knowledge to manage with the best results. Professor Low says the hog is subject to remarkable changes of form and character, according to the situations in which he is placed. When these characters assume a certain degree of permanence, a breed, or variety, is formed, and there are none of the domestic animals which more early receive the characters we desire to impress upon it than the hog.

The hog is often the poor man's main reliance, every portion of it being susceptible of use, and if his weight at a given age can be doubled on the same

amount of food, by the use of pure bred animals, a vast benefit will be conferred on the economic interests of the masses and a large addition to the aggregate wealth of the country. In raising improved thoroughbred hogs it is a great object to get a breed that will grow rapidly and mature early, and the better the breed, the more rapidly they will grow. A highly bred boar at six or eight weeks old can usually be bought for twenty or twenty-five dollars. Such a boar in a neighborhood is capable of adding one thousand dollars a year to the profits of the farmers who use him. The general quality of the improved hog of the present day is far superior to that of twenty or thirty years ago, when it was the exception to find hogs in market weighing over one hundred and fifty to two hundred pounds, and these were principally of the racer breeds, such as must make their mile in about three minutes; these are now known as the Land Pikes, Prairie Rooters, Elm Peelers, etc. The farmers of the present day, however, have found that a much greater profit can be realized in raising a better class of hogs, such as shall mature in the shortest time and make the heaviest hogs at about eighteen months of age, and it is no uncommon thing now to see averages ranging from three hundred to five hundred pounds, all brought about by the use of pure bred hogs. The following description may be considered the perfection of form in a pure bred hog: The back should be nearly straight, though being arched a little from head to tail is no objection; the back uniformly broad and rounded across the whole body; the touch along the back should be firm, but springy; the shoulders, sides and hams should be deep perpendicularly and in a straight line from shoulder to ham; the legs short and bone small; the neck short, thick and deep; the cheeks round and well filled out; the face straight, nose fine, eyes bright, ears pricked, and the head small in proportion to the body. A curled tail is indication of a strong back.

The disadvantage of using cross bred or common bred hogs are many. The farmer of to-day that takes his hogs to market, if they don't average two hundred pounds, finds himself with but few competitors. In all farming pursuits none is more honorable to a farmer than to have the heaviest average lot of hogs. That crowns him king of the neighborhood. The returns that scrub hogs bring to those that breed and fatten them are just about the same as the returns from scrub cattle: the longer a man keeps on breeding them, the poorer he gets. Tramps claim that they can always tell a gentleman by his dog. A better way of judging a good farmer, however, would be by the kind of hogs he keeps. If his hogs are of the long bristled, long snooted variety, you can rest assured that but few of the comforts of life have fallen to the lot of that farmer. No papers for the family to read; no musical instruments in his house to make home happy; no washing machine to lighten the labor of a faithful wife. Why this state of affairs? It is easily told. He has been satisfied with the razor back breed of hogs. Corn bread, coffee and sow belly is his bill of fare. Not so with the farmer that breeds and fattens the improved hog of to-day. His home has all the comforts of a modern farm house; on his table are all of the best agricultural papers; his library is well filled with books; musical instruments for the enjoyment of the family. Compare these two conditions of farm life, and the picture is not overdrawn. In the one we see health, wealth, contentment and refinement, in the other poverty,

no refinement of intellect, simply a living. But to the credit of the farmers of this State be it said that few and far between are the farms that have the scrub hog now-a-days.

Mr. Shiel. I see Mr. Grinell, of Illinois, is in the meeting. He is a man of considerable experience, and I would be glad if he would give us the benefit of his investigations.

Mr. Grinell. I am not much of a talker, and do not rise to say much. You can breed a hog and make it any kind you want. I do not want the Poland China by itself, but prefer a mixture with the Chester White. I can take the Berkshire and Poland China and make a spotted hog.

QUERY NO. 1.

"What is the shrinkage from gross to neat in butchering, both to fine bred hogs and to scrubs also? Is there any great difference in the per cent. of shrinkage between a young hog and an old one, other things being equal?"

DISCUSSION.

I. N. Cotton. I used to buy hogs and drive them from ten to twenty miles to market. We found that matured hogs would meat better, and could afford to pay more per gross than for young hogs.

Mr. Shiel. A hog after twelve months old is more solid than one five or six months old. In a pig weighing 180 to 225 pounds, and the flesh put on in six months, there is a difference in the meat from that of an older one. It is not so hard, and you will find it looser. It shrinks more from the time it is killed and put in the salt until put on the table. It will shrink in the smoking. It will shrink when you cook it. Take a hog at fifteen months old, and he has filled inside, and his intestines are not larger than your fist. All young hogs have larger entrails. There is considerable difference, notwithstanding, from outside appearance, one may seem as fat as the other.

Pres. Jones. Meat will shrink in cooking. A great many believe in the changes of the moon as affecting shrinkage. Don't you believe it is the condition of the hog when killed?

Mr. Shiel. We don't make much difference. The cutter and killer are two different men. It is important to guard against softs, as they can not be handled so well as a hog that has a more solid flesh. They claim that hogs which are mast-fed are soft, and sell for one dollar less than other kinds. The meat is oily, and we can not cool it sufficiently to make it solid.

Mr. Cotton. We had that experience thirty or forty years ago in this county. We had mast, and that made a distinction all the time from corn-fed hogs.

W. A. Macy. If we manage our hogs right, we can make from 30 to 50 per cent. on the feed. In England they fatten their hogs measurably on ground feed and cooked potatoes. It is soft, and hogs do well on it. It makes a better price in the market. It is not best to feed too much hard corn.

Mr. Williams. For the last ten years I have bought my meat. I generally pick

for small spring pigs, weighing from 200 to 250 pounds. I find a great deal of steam raises from the skillet in cooking young meat. Last year I got older ones and did better.

QUERY NO. 3.

"What benefit is derived from crosses with the Poland China and Chester White?"

Mr. Grinnell, of Illinois. I have had experience in raising hogs for thirty years. I followed that last year, and my hogs did well. I had twenty-five sows which averaged eight pigs to the sow, all of which did well. I killed some at eight months old that weighed 260 pounds. My idea is to cross, but we should have thoroughbreds to keep that up. The Poland China is good, and we can not do without it, but we must have some other kind to mix with them. I can make my hogs to suit me by crossing.

QUERY NO. 4.

"Which gives the best return, feeding hogs on floor or dirt?"

DISCUSSION.

Mr. Shiel. I object to feeding hogs strictly on a floor. No hog intended for market should be fed on a floored pen. The minute you take him off the floor he gets crippled. He gets down and cramped up, and his legs break like pipe-stems. You may handle your own hogs, if you have a short distance to go; but 90 per cent. of the hogs fed in that kind of pen are more or less crippled before they get to Boston. If you have a floor to feed them on, and let them go off on the dirt to wallow and sleep, they will do better. I have seen as high as thirty dead hogs in a car of floor-fed hogs.

Mr. Sailors. I indorse a great deal of what Mr. Shiel has said. I have shipped a great many hogs, and I never bought one fattened in a pen on a floor, but what got more or less crippled before getting to its destination. Mr. Kingan told me in butchering such hogs the joints in the hock and knee were more or less blood-shotten. If a man don't have a good graveled place to feed on he had better make one; they will do better on that kind of ground than otherwise. I never fatten on floored pens. I can always buy those hogs for fifty cents lower than hogs fattened under different circumstances.

QUERY NO. 5.

"What is the demand for breeding hogs west of the Mississippi river as to size and color, and why are the Poland China the most popular breeds?"

DISCUSSION.

Mr. Sailors. The reason the Poland China is the most popular is because more breed this kind. When I ship a load with a variety of colors I find I have got a load that don't suit the market. But with thoroughbred Berkshire and Poland

China and thoroughly matured, I find no trouble in selling them. I have tried the Chester White, Irish Grazer and little bone China, but have never had anything that matured as quickly and had as few runts as with the Poland China. The Poland China is the right hog for market. At nine months old, if properly cared for, they will weigh 300 pounds, and you can always get a good price for them. I want a hog that is round from the head to the tail, and we find that in the Poland China. The hams are hard and solid, and I think more so than the Berkshire. There is, in my opinion, no better cross than one with the Poland China and Berkshire; if you make more than one cross you are liable to get runts. I want a hog that will flank down to the hock, and this is a peculiar point of the Poland China. The Berkshires are the worst fighters of any; the stronger pigs fight the weaker ones off, and runts will be the result. You will see more runts with the Berkshires than any other, except the Jersey Red.

Mr. Tomlinson. The Poland China is the most quiet disposition and more adapted to being penned up; are contented and don't worry.

QUERY NO. 6.

"Is it a good idea to let pigs run on clover higher than the pigs' back?"

Mr. Cotton. I would not refrain from turning them on it.

QUERY NO. 7.

"What kind of feed do we need in Indiana for the best results; health and profit considered?"

DISCUSSION.

Answer. Grass, corn and milk.

Mr. Mitchell. I want to know something about maturity.

Mr. Shiel. The soft, oily hog is produced by the food from which it is fattened on. A man of experience can tell such as soon as he sees them; they are generally house or slop hogs. I am told that whey hogs are nice. There are sections in Indiana where we have acorn pasture. When the pigs are three months old and get mast and no other flesh put on them, it stays in the meat. It is claimed that mast makes soft meat; this meat will not cure so well as meat that is more solid.

Mr. Mitchell. Frequently in those early matured hogs the meat is not firm enough to be used. A hog twelve months old, weighing from 300 to 400 pounds, meets the demand. Keeping them until they are eighteen months old is too expensive, and growth not so rapid at that age as previous.

Member. Do you think a nine-months-old hog would make as good bacon as one that is older?

Mr. Mitchell. I would prefer one older than that.

Convention adjourned.

EVENING SESSION.

Convention met at 7 o'clock, President Jones in the chair.

On motion of Mr. Jackson, Messrs. Jackson, Reveal and Williams were appointed a committee to draft resolutions regarding the death of Gates Robbins.

W. C. Williams, of Knightstown, read the following paper:

THE BEST MODE OF PREPARING HOGS FOR THE SHOW RING WITHOUT INJURING THEIR BREEDING QUALITIES.

The subject of this paper is difficult of treatment for several reasons, which need not be separately treated. The theory here presented will call forth honest criticism from those who are manfully seeking to do the right, and it will arouse the objections of those who would succeed by unfair means. The subject is of vast importance to breeders and their patrons alike, and it should be treated in a fair, impartial and unselfish manner. There are also varied phases of the subject, and it is not easy to decide which is of paramount importance. There are several classes in the show ring, and it is at least doubtful whether any one class can be treated properly or improperly without entailing good or bad effects upon the other. The pig is so closely allied to the hog that it is impossible to draw the line of distinction between them. The treatment of the latter affects the former, and the treatment of the former affects the latter. The young pigs to be shown under six months shall be considered first in order. They may be fed nearly or quite as much as they will eat, provided a variety of nourishing food is furnished at regular intervals, so as to develop a uniform growth of body and system. A good constitution is as essential as pounds avoirdupois, and activity is as important as fatness. It is reliably true, that if the pig be so managed as to be not too fat to be active until coupling time (which should not be sooner than eight or nine months) it is not necessarily injured by being pushed. Let the feeder be careful that bone and muscle, nerve and fatness be uniformly developed in the growing pig, and all will be well.

The class over six months and under one year will be next considered. It is a very difficult class to manage; first, because the pig which has just rounded its first half year must compete for the honors of the show ring with those which have nearly reached their twelfth month, during which time they have fared sumptuously every day; secondly, and far worse, it is to be feared that this youngster is often compelled to stand in the show ring side by side with an ancient competitor who has already celebrated his first anniversary. With these odds against him the owner knows he must push his stripling so as to make as large a showing as possible. On the other hand, where age is fairly represented, and the six month pig has been fed so as to develop as large growth as possible, the eleven month competitor must be fed so as to develop a growth proportionate to age, else he may fail to secure the prize. To feed sows for the show ring under such circumstances as those

referred to, is but to encounter many and greater difficulties than have yet been noticed. The sow last referred to, if bred just before the commencement of the show campaign, will farrow in winter, which is decidedly objectionable, and in an endeavor to avoid this difficulty she is fed on without breeding until internal fatness renders conception doubtful without reducing her flesh, (the process of which will be treated further on). Several valuable sows have been permanently ruined as breeders by this process of feeding, to the knowledge of the writer.

The next class is that over one year and under two years old, and is of more importance than any yet referred to. There are some showmen who feed from the time the pig is farrowed until it is eighteen or twenty months old. Their stock is not bred and allowed to raise a litter of pigs, lest too much time should be lost from preparation for the show. But they are pushed on until, by high feeding, long continued, they become internally a gorge of fat. It is fairly established that a hog fattens on the outside first, and that after no external improvement can be noticed, occasional weighing discloses the fact that the same gain per day is made for a certain time, and this gain, then, must be made by inside fattening. Where all the inside space is filled with fat, as the result of long continued feeding, there can be no room or insufficient room for the growing pigs they carry (in case coupling proves successful). There remain these other difficulties, viz.: Failing to be delivered of their pigs or an attack of fever, either of which would be likely to prove fatal. Nature teaches that a sow will come in heat after suckling a litter of pigs when in the lowest condition of flesh, and that the desire to meet the male is stronger then than in the same animal after fattening. The strongest pigs at farrowing time the writer ever raised, were from sows that had pigs at one year old, suckled thin, bred in this condition, fed for show, and farrowed in October or November.

The same results would follow the feeding of two-year-old sows. Let them be bred so as to farrow soon after the fairs are over; their pigs, if worth nothing more, will reduce the sow to a proper condition for breeding to farrow the following spring. To suckle the fat off a sow does not impair her, but to reduce her by starvation is injurious.

Finally, after sixteen years of breeding and feeding, for show and sale, for breeders, experience and observation has taught me that unless sows are in pig when fed for show, there is great danger of barrenness.

In feeding male hogs for show, the greatest disadvantage arises from using a fat, clumsy animal. Preference, therefore, is in using a male that is in strong, active, healthy condition. A male hog may be reduced by assigning him a lot adjoining the range of other hogs, where he will be most likely to fret and worry off his fat without injury to the hog. With this brief, yet sufficient, reference, this class may be passed.

Encouraged by the successes in swine breeding in the past, and aided by the errors and failures of the years gone by, to avoid mistakes for the time to come, may the achievements of the years that shall follow be more signal and clearly marked than all those which have gone before, so that this now noble and valuable (though once despised of domestic animals) shall reach a plane of improvement above the present as much higher than that from which it has been lifted.

DISCUSSION.

Mr. Reveal. The assertion of the gentleman by saying it is well established that they fatten on the outside first and then on the inside, needs explanation. I would like to know what way fat on the inside begins to lay on.

Mr. Williams. I can not give a satisfactory explanation. All feeders say after they get in good order they can't see that they are growing, but on the scales you find they are gaining; they are filling up inwardly.

W. A. Macy. I like the gentleman's remarks. When I feed for the show-ring I feed forty days; some feed thirty-five only. I want them only in moderate flesh to commence with.

Mr. Reveal. Such hogs are excellent feeders if they get ready for the ring in thirty or forty days. If a hog is kept where there is good shade, and water to bathe in when he desires, and if you feed him very fat and take him into the fair ground, you have to sprinkle him with water to prevent suffering. To feed up a hog for the ring he should have more exercise than he will take of his own accord, and not allowed to bathe in water too much, nor have too much shade, but follow him around the lot with a whip, in order that he may take sufficient exercise. I want a little more than thirty-five days to feed up to compete with other men.

Mr. Williams. Two years ago this fall, I had a yearling sow, which took the first premium at the fair. She raised six pigs and made show pigs the same year.

Mr. Mitchell. This thing of preparing stock for the show-ring is a very difficult thing to accomplish. I have taken much pains to look at the stock bred for exhibition purposes. The right point to stop at in feeding is difficult to solve, as to the point to show best. There is another difficulty: the fattest animals, now-a-days, don't always win. We don't want them too fat; feeding for the show-ring has changed very much of late years. I have attended some of those fat stock shows at Chicago, and some animals which took the premium five years ago would not be admitted now. It used to be different—the prize was awarded the fattest animal. If we feed an animal up so very fat the butchers won't buy it. I have noticed that very closely, not only in hogs but in cattle; they pay more attention to the fine lay on of fat, both in hogs and cattle. The point to stop at in feeding for the ring is harder to learn than anything else. Mr. Reveal talks of thirty-five days to feed; it is too short a time to fix them up properly.

Mr. Thomas. The question to decide is as to how the fat is put on.

Mr. Mitchell. There is a great deal in the way it is put on. Some animals lay it on in lumps; you can feel it with the hand. There was a steer at Chicago, brought from Canada, that when you put your hand on it, it felt as smooth as glass. There was an oily substance which lay on above the flesh, which was put on with some kind of feed.

Mr. Thomas. We have a class of animals that in feeding the lean makes next to the bone, and fat outside. We must have judges to discriminate in this matter. There is no question but that a marble flesh animal is worth double that of others.

President Jones. We run against a saw-buck last year. When we came to showing yearling sows, there were sows from twenty-three months old down to twelve months and seven days. Now they were yearling sows, and in their proper

place. One may be barely over twelve months or lack a little of twenty-four months, but still is classed as a yearling. I would like if this meeting would give some expression on this point.

Mr. Williams. A resolution of this Association was that such sows should be over sixteen months old. I see the National Breeders' Convention, at Chicago, has adopted the same rule. A man having a hog thirteen months old, don't have to show as a yearling.

President Jones. Perhaps a man might have a fine yearling hog and make the best show, but according to this rule he would be ruled out.

Mr. Williams. I think the resolution says under sixteen months old to show in the yearling class.

D. L. Thomas. My brother had a very good show cow, with marble flesh. She became barren and got excessively fat. He let her run to the straw-stack, with no other feed, and still she retained her flesh. He thought, by letting her run to the straw, it would reduce the flesh so she would breed, but such was not the case. It was a little singular. Many of you have seen the cow. Finally, the cow was sold to the butcher, who trimmed eighty pounds of fat off the hind quarters before it was ready for his customers.

Mr. Mitchell. We should not require a man to destroy the breeding qualities for the show ring. You show the fattening qualities for the butchers, but not for the breeding stock. I think this should be discouraged, and let those various breeds of hogs come up in a fat form and realize the full value of the carcass. There is a great sacrifice takes place in feeding a nice young sow extra fat to bring her to the fair. There is not much usefulness in that animal after that. At the Kansas City Fat Stock Show the steer Starlight got the first premium. At Chicago I don't believe he won a single ribbon. Roan Boy was first at Chicago, and Black Prince first in his class. When the animals were entered for slaughtering, competition came again, and Starlight won the first prize for choice beef. Experts did judge correctly at Kansas City. Chicago gave the premium to Roan Boy, and Kansas City to Starlight. This expert business is rather uncertain. Experts sometimes go as wide of the mark as other men. There is one difficulty with experts—when there is more than one there is a chance for shifting the responsibility, but when there is but one this is obviated.

W. A. Macy. We have a scale to grade hogs, as well as chickens. Why not work up to it?

Mr. Mitchell. No, sir. Chickens have feathers. We can scale points on chickens better than hogs.

Mr. Cooper. We have got off the subject. The question at issue is an important one, and I would like to have it discussed, that we might learn something. If there is any one here able to tell how to prepare for the show ring without injuring their breeding qualities, I would like to know it. It is a subject in which we are all interested.

Mr. Williams. I never lost a sow or pig when showing them at fairs. I have a sow at home now which has taken more red ribbons than any other one sow in the State, and she is thin. She has been at St. Louis and got four sweepstakes and two second premiums. I bred her six times and did not have her get with pig; then

I turned her in the woods and let her get down poor, and succeeded in breeding her.

Mr. Sailors. I like the paper read. He told us how we should treat the sow. I had a male pig not quite a year old, which weighed 420 lbs. I had to make him fleshy to weigh that for show purposes. When put back in the lot he quickly run down. I have not let him go to but two sows this winter. One of the sows weighed 640 pounds—a Poland China. I bred her in moderate flesh and fixed her for the fair, and got all the premiums I asked for. She had eleven pigs and did well, saving ten out of eleven. I fed her sparingly after having pigs. I do think we have got breeders in Indiana that are capable of judging stock without those experts. We all want to beat and we feed to beat. There are more hogs injured by not feeding enough than by feeding too much. I don't think I have injured any of my stock which I have taken to the fairs by feeding. I don't stop at thirty or forty days feeding to get the points right. They will sometimes get lumpy, and whenever you fat a hog that is ridgy you get him out of shape.

W. E. Jackson. There is too much said about this expert business. I disagree with some of the gentlemen on some points. One says if a man is a judge he will not give the premium to superlative fat. I think an expert is conversant with the requirements that go to make up the animal. If he is called a judge of Berkshire he is supposed to be familiar with all the crosses and points of that breed. If our friend were to bring out a Berkshire, and some man came up to judge who did not know anything about that breed, he would say at once that he was an ignoramus judge. He is opposed to the expert? The best way is as it has been, to have a man for each class, and men who should know their business, so that their judgment can be relied on. This difficulty prevailed at St. Louis last fall, and the hog ring was hotly contested. A Berkshire man was called to pass on the Poland China, and a Poland China man was called to pass on the Berkshire; the consequence was the other breeders were dissatisfied, not that they doubted the man's judgment, but that each one had interest in passing and giving premiums to his neighbor. We should have our State Board to select three men to serve as judges on Poland China; their judgment would be more preferable than to pick up breeders and men on the ground not knowing much about Poland China hogs. I am decidedly in favor of our State Board having a committee of each department to pass on the hogs. They could make arrangements for one committee to pass on each class and sweepstakes.

G. W. Thomas. An expert is one who breeds and butchers hogs. One will soon learn the qualities of a hog from experience in breeding and butchering, and knowing how the meat sells. This convention is for the purpose of educating our ideas to a higher standpoint, and we should take some decided step in this expert business.

Mr. Williams. I don't know but that the State Board did right in rejecting our proposition as to experts.

Mr. Mitchell. A man who loves and takes an interest in stock is the kind of a man we want for judge and expert, and we will arrive at nothing satisfactory until this is brought about.

W. A. Macy. It is a difficult question to get an expert to suit every one. At

those great shows in England they select their committeemen for particular classes, and there are sharp criticisms.

W. E. Jackson. Mr. Mitchell has got on my side. That is just my idea, exactly. Let each member of the department request some breeder of each class to appear on the day on which these different classes of hogs are going to be shown and act as judge. I do not like the idea of picking up Tom, Dick and Harry for this purpose of judging stock. We find more or less dissatisfaction growing out of it. These judges should be drawn before the fair to pass judgment. By this method better satisfaction will be given.

D. L. Thomas. If we have but one man to judge, he has the whole responsibility; but if there are others, he can hide behind them. Then, too, it singles him out, and criticism comes sharper. At the last Kansas City fair they had Mr. Corn, of Kansas City, to judge the hogs, and there never was better satisfaction given in the State. I very much favor the one-man committee.

Mr. Mitchell. Where you get a large show of hogs, you won't get one man to come in and pass on them. The responsibility is so great, he loses confidence in himself. He would rather have others with him.

W. A. Macy. How can an expert be assisted without conversing?

Mr. Mitchell. That is a bad idea. The best thing is to get to work and vote; if they are not good judges they will vote scattering.

Mr. Reveal. Often at fairs breeders shirk and refuse to serve on committees. I think the breeders should be good judges, and know just where the ribbon belongs. They are a little ahead of us in Ohio. They want experts, but want to scale hogs, knowing why they are better. The percentage is the thing we should take. If there are twenty hogs drove in, five or six may be better than the others. Some don't see those fine points, a wide forehead, nice ear, thin neck, and short, fine shoulders; the head a certain shape, in some of our fancy breeds. An expert is a man who understands correctly these hogs, and by handling and feeding them he comes an expert. To be a good judge of the Poland China, as well as all other breeds, he should know how to care and handle them successfully before he can render an intelligent decision.

Mr. Mitchell. A judge is often hitched in with two others, who don't know anything. If the managers of the fairs would select good judges you would not find much kicking.

Mr. Shiel. I find that breeders that are good judges of their kind of hogs are not always good judges of other breeds. A man breeds Jersey Reds; he finds all the points of that particular breed, but none of the others. This passing on hogs sometimes a difficult task to know just where the honor lies. Our finest hogs are shipped East. Philadelphia gets a large number of our best hogs. There are no packing houses there, but all butchers.

D. L. Thomas read the following paper:

DISEASES OF SWINE.

The outbursts of disease among the swine of the United States during the past twenty years has attracted the earnest attention of thoughtful men. And while absolute immunity from disease can not be expected, it is a fact highly complimentary to the practical breeders that they, of all hog raisers, are now suffering least from such ravages. It confirms the belief that careful management has much to do in preserving the health of swine, while negligence receives its reward. Experience and observation demonstrate that the best remedies are found in the removal of causes which produce disease. The chief causes which promote disease are found in the food, drink and range of the stock. In fact, these nearly cover the whole ground. But I wish to specify some particulars.

FOOD.

The unfortunate sentiment prevails with many men that anything is good enough for a hog. In preparing food, many farmers are governed by the idea, "Will hogs eat it?" On this account unwholesome food is often furnished. Unsound corn is fed with impunity. I know a well-to-do farmer who raised excellent corn for 1883, and last fall he tried to buy defective corn to feed, so as to sell his own corn at a good figure. In other words, in order to make a few extra dollars on corn, he would risk losing his stock in an attempt to make bone, muscle, fat and blood out of unsound food. Many farmers, in buying corn for feeding purposes, will take defective in preference to sound corn, because it comes at a few cents less per bushel. They think it is economy.

DRINK.

Impure water has destroyed more hogs than any one thing. Hogs can be induced to drink filthier water than any other domestic animals. On that account they get more of it to drink. The conformation of the hog makes it need water worse in hot weather than other animals. Its legs being short, brings its body nearer the ground, which makes it feel and inhale the hot air more freely. Its body is composed largely of fat. These circumstances subject the animal to excessive heat. If only very filthy water is obtainable, they must drink it or perish.

Then, for the sake of convenience in obtaining a supply and in pumping water, farmers quite frequently seek the lowest parts of their farms to establish wells. Water is found nearest the surface in those basins, so that shallow wells answer the purpose. Generally, rain washes surface filth into those wells; if it does not, the water carries the impurities into the well through the pores of the soil.

During harvest and threshing season, farmers are from home the entire day, engaged in the interchange of labor. Hogs must endure the longest days of most oppressive heat without water to slake their thirst and cool their fever. Late in the evening they are supplied with drink, at which time they are apt to gorge their stomachs with putrid water. This deranges the digestive apparatus, and not unfrequently causes a sudden outbreak of disease.

And during dry seasons swine diseases prove quite fatal along water courses. At such times water ceases to flow in many brooks; what water is visible stands in pools and soon becomes stagnant. Live stock is forced to drink such water, as men not accustomed to pumping water for farm stock seldom resort to the practice while any water is visible. Swine drink and wallow in the scum and filth. Amid such destroying agencies death numbers its victims.

The proprietor of a large rendering establishment claims that he has for years obtained his principal supply of dead animals along water courses. The success of his business confirms what I have stated. Many diseases are due to minute organisms known as "disease germs." The vitality of these germs is preserved for some time in water. The germs are thus conveyed to the stomachs of swine. In short, all decaying animal and vegetable matter found in such impure water is soon transferred to the hog's system. In a few weeks after the inception of these germs the disease is fully developed. This accounts for the greatest fatality among swine during the latter part of summer and early fall.

Then there is strong collateral evidence to condemn the custom of permitting hogs to drink impure water. Scientific investigation has detected impurities in milk caused by cows drinking filthy water. Such milk is declared unwholesome for food. Now, if impure matter in water can be conveyed through a cow's system, thereby rendering her milk and butter unhealthy for the consumers, how apparent must be the evil likely to result to the animal that drinks such impure water.

In numerous cases where entire families have been prostrated with typhoid fever, while near neighbors were wholly exempted, the attending physician traced the causes to impure water or foul air. In some cases the surface water of the yard and slops from the kitchen run into the wells where the families got their supplies of water. In other cases the presence of sewer gas was found to be the source of the malady. Now, the swine plague or fever (so-called "cholera") is closely allied to typhoid fever: indeed, physicians who have studied closely both diseases pronounce them identical. Then, if certain influences produce fever in the human family, like influences will certainly develop diseases among swine; for the circumstances are parallel.

THE RANGE.

The rankest vegetation is found along water courses and on the low lands of the farm. Impurities are eliminated in the decay of vegetable matter. Heat and moisture generate poisonous gases. Swine ranging in such localities have these additional difficulties to encounter. Science has long since discovered carbonic acid gas in the atmosphere. A practical chemist can generate the gas as dense and visible as clouds in the air. During long periods of dry weather the air becomes more highly charged with the gas. Rain washes the atmosphere and beats the gas to the earth, then we feel invigorated and remark about the air being so fresh and pure. The gas being heavier than the atmosphere, settles on the surface, and winds carry it along until it finds the lowest places. By this means it drops into wells and basins. This carbonic acid gas in wells is commonly known as "damps," and is deadly to inhale in such a dense form. It can not help but exist, often in a di-

luted form, in basins and marshes. Stock ranging in such localities must suffer to some extent by its presence. Now there are instances where nearly, if not all, these unfavorable conditions combine at once. Just think of it. Hogs eating unwholesome food, drinking germs of diseases, inhaling noxious gas, wallowing in filth, and ranging in malaria. This picture is not overdrawn, for there are farmers who are annually paying the penalty for such gross negligence.

THE REMEDY

Lies in removing the causes. Tile drainage is incidentally proving a powerful remedial agent, as low lands are being drained for purposes of cultivation and stagnant water removal, yet farmers, unwittingly, are still seeking the lowest and spouty land for watering places. They construct their feeding lots adjacent and fatten their hogs in the same. Further tiling, which is going on continually, will give still further relief.

Indiana was formerly notorious on account of its malaria. But recently a wholesale drug house in this city informed the editor of the Drainage Journal that tile drainage has reduced the sale of quinine, and other fever and ague remedies, nearly 60 per cent. So it is aiding in preserving the health of swine, but the unfavorable conditions along water courses remain to foster disease which is damaging us at home and abroad. We must agitate this matter, and hold up this suicidal policy, till the most careless and reckless hog raiser shall be awakened to a sense of his own interest, as well as the general good. Those pest wells and stagnant ponds (the receptacles of filth and promoters of disease), must be abolished. It is the height of folly to attempt to arrest a disease with nostrums, in broken doses, while the disease is entering the hog at its mouth, nose and every pore. But when the hog raiser makes his hog range on elevated land and supplies his swine with pure water, and protects them from extreme cold and heat, and furnishes wholesome food, he proclaims to the world that he has insured his herd against the majority of swine diseases.

DISCUSSION.

Mr. Mitchell. The President in his address had occasion to refer to this fat stock show. I think certainly it was right to have a committee appointed to take up the suggestion made, report on, and take some action. Inasmuch as this has not been done, I might impress the idea that this convention should not adjourn without an expression about this fat stock show, which is to be an exhibition of fat stock; the animals represented should be slaughtered after being exhibited, to better illustrate their fattening qualities. I hope the farmers of Indiana will take an interest in this. We want to bring a class of people here who go to Chicago, and if we do not move into it ourselves we need not expect others to, and we should take some steps to reach this matter. In the event it is gotten up, we should prepare for it. For my part, I am willing to be assessed a little in order that the enterprise may be put forward. At Chicago there was an exhibiter

from England, who said the show at Chicago excelled the great show at Smithfield, England. If we could arrange these shows in rotation, it seems to me it would be most satisfactory, say Kansas City in November, Chicago next, and then here; I think we can make quite a creditable display.

Mr. Reveal. I do not see why Indiana can not have a fat stock show. If we do not help ourselves no one else will. Indiana can have a creditable good stock show if this Association will agree and do their part as well as the Wool Growers. I am willing to contribute something to start this. Some seem to think it won't pay, but I think we can make it a success; money can be made up in this town to carry this enterprise on. We want to made a good show at the fair, and then wind up for the year with a grand fat stock show.

Mr. Mitchell. In starting out this evening to find out how the matter stood with the people here, they would say to me, "Why don't you go to the farmers; there is no class that realize more from this than the farmer?" The State Board was a little afraid to undertake this, as it is somewhat in debt. We need a little assistance outside, and we want to get the railroads, hotels and stock-yards interested in this. If the farmers stand still at this point they make a mistake.

On motion of W. A. Macy, the following committee, consisting of Messrs. Macy, Mugg and Reveal, was appointed to examine the President's address relative to holding a fat-stock show, and report to-morrow morning.

Convention adjourned until 8:30 o'clock to-morrow morning.

THURSDAY MORNING SESSION.

Convention met at 8:30, President Jones in the chair.

Mr. Macy, of the committee to whom the President's address was referred, made the following report, which, on motion of Mr. Cooper, was received:

We, the committee to examine the President's report in reference to holding a Fat Stock Show under the management of the State Board of Agriculture, at this city during the year 1884, report that in our judgment we as a State Association should heartily indorse the effort now being put forth by our Board of Agriculture, and believe each member should hold himself in readiness to contribute to the increase in premiums; and we further pledge ourselves to exhibit some valuable animals of our best breeds.

W. A. MACY,
LOYD MUGG,
T. M. REVEAL,

Committee.

QUERY NO. 8.

"Does cooked feed pay?"

DISCUSSION.

President Jones. In my opinion there is no mode of feeding that equals cooked feed. If we want to feed for market we can do better on cooked corn than any thing we have tried. One bushel of cooked feed fed in troughs is better than one and one-half bushels dry grain.

QUERY NO. 9.

"What shall we do with the cull pigs that we fail to sell for breeders, when we can not raise corn enough to fatten?"

DISCUSSION.

Mr. Williams. If you have any of that kind trim your boars and sell them to your neighbor who has and wants to feed corn, but don't sell the sows.

President Jones. Suppose a man raises seventy-five pigs; how many of that number, if they are straight, can we sell as breeders?

I. N. Barker. I can recommend about eighty per cent. of mine; some particular litters will run higher than that. Ten years ago the average was not so high.

Mr. Williams. I have a better average than Mr. Barker. Last year I raised sixty pigs and sold every sow for breeders and all but two of the male pigs. This year I have sold about one hundred and forty, and have two sow pigs and four males left.

Mr. Mugg. My pigs are all good. The amount we have sold is something better than eighty per cent. The way I can tell is by the opinion of men to whom we sell, as I hear of no grumbling.

President Jones. I have been breeding Poland China for seventeen years. If a pig starts out and don't grow well, I would not ship it to any man, but if he comes to the farm and selects it I will sell it to him. I have not reached quite eighty per cent. yet.

I. N. Barker. There is a point here we should guard carefully. Last year we had hogs that did so well there was a temptation to send out pigs that should be kept at home. Some yielded to that temptation, which will, in the end, do an injury. From what I can see from the present outlook, the same thing will be repeated next year if we have a good crop of corn.

James M. Dye, of Boone county, read the following essay:

THE FUTURE OUTLOOK FOR PROFESSIONAL BREEDERS OF THOROUGH-BRED SWINE.

The breeding of swine, like the breeding of all other domestic animals, is a science; and, while every problem relating to this science has both a theoretical and a practical side, the true breeder stands between principles and conditions, and when he sees the well-defined "points" and marks, characteristic of the perfect animal, he knows them. When he makes proper applications of principles to conditions, in his selection from the best of the pure breeds, and in the breeding and treatment of his stock, he is, doubtless, on the royal road to success.

Everything has its day, and so it was with the elm-peeler. In his day he was a popular specimen of his race, but the conditions under which he so gloriously flourished have disappeared, and he glimmers among the things of the past. The long-nosed, slim-necked, bristle-backed, slabsided, long-legged, nervous, restless hog of the forest has vanished from our sight.

And with the advent of the thorough-breds, those old foggy notions then existing in the minds of the common farmer and breeder, have been displaced, and that superstitious belief in luck and chance has been superseded by a thirst for knowledge, which is one of the great fundamental principles of success.

Surely, then, if the realization of the one great object to be attained, depends upon a correct knowledge of principles and conditions, the future outlook is an encouraging one, for that knowledge is being more generally diffused among our swine breeders.

But, aside from this, the profit in swine breeding depends a great deal on the demand for pork. The only way to estimate the demand of the future is by comparing present indications with past experiences, and it is universally believed that the breeding and rearing of swine has been, and is now, a profitable business. Then, taking into consideration the fact that the present population of the United States is daily increasing by the swelling tide of emigration, and that this vast augmentation of our numbers is adding to the number of flesh consumers—for meat is their staple article of diet—we, being a nation of meat eaters, with this vast increase going on, could find a market for our pork in our own country, even if shut off entirely from other nations, owing to its cheapness as compared with beef and mutton.

We know there is a feeling in Germany against the importation of American pork into her ports, but we think that Congress will surely feel enough interest in the welfare of the country to appoint inspectors who shall see that no diseased meat leaves our shores. When this is done, all foreign ports will be open to American pork.

To meet the growing demand for our pork, both in this and foreign countries, and to make the breeding and rearing of swine a highly remunerative and profitable employment to those who engage in it, the far-seeing swine breeder of America (the acknowledged pork-producing country of the world,) will call into requisition his finest powers of discrimination, both in selecting and breeding, so as to produce a class of animals that will grow in favor with the meat consumers, and thereby be enabled to compete with, or outrival, beef and mutton in all the markets of the world. To do this successfully, he will take into consideration that size, early maturity, good form, and a capacity for making the largest quantity of high-priced pork, in proportion to the quantity of feed consumed, are the points to be attained. And he will readily see, that one with a quiet, docile disposition is most easily cared for, and most likely, also, to bring about the happiest results for a given outlay. Whatever is said of the man being a public benefactor who causes two blades of grass to grow where one formerly grew, may be said of the swine breeder who produces two pounds of pork with the same amount of outlay that it formerly took to produce one. It is a settled fact that the scientific swine breeder of the present day, can as easily produce two pounds of pork from the same amount of feed that it took in olden times to produce one, when it took two years to get an elm-peeler ready for market.

As profit is the beacon light by which our feet are guided, and progress the star of our hopes and Gibraltar of our destiny, the swine breeder who turns not aside from the true road of science into the by-path of retrogression, but presses firmly

on, ever using diligence in searching after the best methods of developing the finest strains of pure blood; and, in the observation of such prevailing conditions as may demand his strictest attention, exercising his best judgment in the applications of principles to the existing conditions, until he finally arrives at the *Ne plus ultra* of perfection in his noble calling. To such we would say, that his future outlook is a bright one.

Pres. Jones. I rise to indorse the National Live Stock Journal. I have been reading it for ten years. It is one of the best papers we have, and should be in the hands of every successful breeder, as should also the Indiana Farmer and Chicago Review.

D. L. Thomas, of the Committee on Programme, made the following report:

PROGRAMME FOR NEXT MEETING.

1. President's address.
2. "Linseed Meal as Food for Swine," W. A. Macy, Lewisville.
3. "Relation of Fat Stock Show to Swine Breeding," T. M. Reveal, Clermont.
4. "Hogs for the General Market," Edw. Nicholas, Union Stock Yards, Indianapolis.
5. "Characteristics of Chester Whites," H. McCord, McCordsville.
6. "Hog Feeding for Profit and Health," I. N. Baker, Thorntown.
7. "Causes of Mortality in Pigs," J. C. Claypool, Rob Roy.
8. "The Relation of Swine Breeding to Agriculture," G. W. Thomas, Homer, Indiana.

Mr. Jackson, of the Committee on Resolutions, regarding the death of Jacob Gates Robbins, made the following report:

MEMORIAL.

Jacob Gates Robbins was born on the 3d day of August, A. D. 1845, in Decatur county, in the State of Indiana, and died at his home, near Greensburg, Indiana, on the 14th day of November, 1883, of heart disease.

As a member of this association, he was modest, courteous and unassuming in manner, but earnest, cool and clear-headed, never halting or looking backward. This association has profited by his influence and judgment. He will be sadly missed at each recurring meeting.

As a breeder, he was intelligent, careful, thoughtful, liberal, earnest, progressive, zealous and honest. As a man, his character was above reproach; considerate for the feelings of others, respectable, companionable, and of unquestionable integrity. Our sorrow is to feel and know that a life of so high and unusual promise has been so early extinguished.

In view of our irreparable loss, we tender to his family our profound and utmost sympathies and condolence.

D. L. Thomas offered the following resolutions, which were adopted, requesting United States Commissioner Loring to use efforts for the removal of the restrictions on the exportation of American pork to foreign countries:

Resolved, That the Association heartily indorses the efforts being put forth by the Hon. George B. Loring, United States Commissioner of Agriculture, to have the restrictions of foreign countries removed which prohibit the introduction of American pork.

Resolved, That the members of Congress from Indiana be requested to use their influence toward seeing a revocation of the embargo, which is so detrimental to American industry.

Resolved, That the Secretary be instructed to inform Mr. Loring and members of Congress of the action of this Association, and assure them that the health of the swine of this State is better than it has been for many years.

DISCUSSION.

D. L. Thomas. Is there any effort being made to secure better accommodations for reaching and unloading stock at the fair grounds than at present, or of extending the show grounds?

Pres. Jones. Every effort is being made with the Belt railroad and the other railroads for that purpose. Perhaps Mr. Heron can give us some information on that subject.

Alex. Heron. There has been considerable effort made in that direction, and any expression by your Association will facilitate matters. It is important that we get a railroad track and steam communication to reach the State Fair grounds. We made repeated efforts to induce the railroad companies interested to connect with the grounds, but failed, and we had an estimate made with a view to buying the lots necessary to reach the grounds, to avoid laying the track on a street; it would cost \$10,000, and then we would have had to get permission of the City Council to cross three or four of the principal streets running north and south. Therefore, it is almost hopeless to get across the north part of the city from the Wabash railroad. Those living in that vicinity say they will spend thousands of dollars to prevent such arrangement. The property in that portion of the city is more valuable for residences than any other, for the reason that it is the only way out of the city without crossing railroad tracks, and they claim the property would depreciate in value if a railroad crosses the streets there, and so would the Fair ground property in market value. The Wabash Railway Company propose to erect a depot for unloading stock and passengers on their main line, within five squares of the grounds, which will be of some advantage. We have an offer to buy ten acres on the north side of the Fair ground, but it looks like folly to do so unless we have steam railroad facilities. For that reason it is a question of time when the present Fair grounds will have to be removed; we can not afford to hold fairs on ground that is worth \$3,000 per acre. A good location anywhere on the Belt railroad will be equal to being on fifteen railroads, as the railroad companies centering at the capital city have formed a union and leased the Belt railway for a long term of years, so that each road has equal interest therein, and during the time of the Fair would switch onto the Belt and unload at the Fair ground instead of at the Union Depot as at present, and with such facilities any one from the Union Depot could reach such fair ground in one-half the time the

present fair grounds are reached by street cars. There are several good locations on the Belt for sale or exchange that can be purchased for from \$200 to \$300 per acre. It is a notorious fact that during the big days of our State Fair many visitors do not go further than Washington street, for want of more ample accommodations. We aspire to compete with the St. Louis Fair, which has the reputation of being the best in the world, as we have the central location and a great railroad center, but we can not extend our present operations without more ground and access by steam transportation.

Mr. Williams. We must either get more ground or move the fair. In regard to getting our stock there, if we haul four squares it will be almost as much expense as it is now. The railroads at St. Louis are accommodating, and if such inducements were offered here it would be better. It is no trouble for the exhibitors to get there, but the throng of visitors.

Alex. Heron. Would it be any advantage to have a depot on the Wabash road, one-half of a mile from the fair grounds?

D. L. Thomas. I think it would not help us.

Mr. Macy. I think there is no advantage in putting the stock off five squares from the fair. We would have to haul them, as we do now.

President Jones. The State Board is doing every thing in its power, but a resolution from this body would help in the matter.

W. E. Jackson, of Henry county, read the following paper:

CARE OF BROOD SOWS AND THEIR LITTERS.

The practical breeder of improved swine must have quick perception, good judgment, perseverance and patience. With these, the first requirement is a good sized brood house, removed some distance from other pens. A good one can be made eight feet square, tight floored, well sided, with roof sloping to the north and door on the south. After the sow farrows, allow her to remain quiet as long as she will. After a time give her a good bran mash with milk, and after three or four days begin with a little corn, gradually increasing the amount. The bed should be kept clean always. The breeder is at once watcher of herd, doctor and nurse. As watcher, he must carefully notice from day to day the sanitary and physical condition of his pigs. As doctor, he must remedy their ailments. As nurse, he must guard them in their restoration to health. When old enough the pigs should be allowed the run of a half acre grass plot, where they may be left till ready for show or sale.

DISCUSSION.

John Ratliff, of Grant county. At what age to wean their pigs, would properly come in this subject.

Mr. Jackson. That depends on the growth. I never wean under four months. Some wean earlier and some later. Some will not wean under six months old.

President Jones. It is owing to the breed of swine.

Mr. Williams. I have not had a sow to suckle four months. I wean at three months, and if I wish to show the sow I take away at ten weeks.

Mr. Reveal. My experience has been that May or June pigs will do better to wean at ten to twelve weeks than to run longer. If a sow has a good litter of pigs, at four months they can hardly get around her. I differ somewhat from the gentleman in the management of the brood sow. I understood him to say, in his address, that he would give the sow bran mash, milk and corn. I do not think, under any circumstances, I would give corn until the pigs are twenty-four to thirty hours old, on account of fever. I should be very careful for ten days or two weeks. I believe he recommended changing the bed in four days. I generally change as early as possible.

Mr. Wright. I generally feed my sows corn and milk after farrowing. Sometimes I don't feed quite so strong on corn as before she has pigs.

Mr. Sailors. This was one of the main points which induced me to attend this convention. I wanted to learn how to take care of sows before and after farrowing. Mr. Jackson says about four months is the proper time to wean. Breeders differ on this point, ranging from six to fourteen weeks, and some as long as four months. My idea about feeding a sow is that milk is injurious immediately after giving birth to a litter of pigs. I hardly ever go to the bed for three days, and in no way disturb her. I place water where she can have access to it. I do not think it is advisable to confine her in a close pen, but make the bed where she can have liberty to go in and out. When I have confined the sow I always lost more or less pigs. I have bought several pigs of breeders. We hardly ever get a pig under five months old. The question is, how to get that pig fat? I have never succeeded in putting on half the pounds of fat that has been claimed to have been put on in four or five months. I can take a pig of mine, and the last four months add on more than the first four months.

D. L. Thomas. I know that is the case. We speak about the age of young stock; unless they refer to their memorandum they are apt to put the age lower than it is. Another thing my friend will find, in a great majority of cases, some time elapses after he writes before he gets the pig. He waits and rewrites, and sometimes a month or six weeks intervenes, which makes the pig older when it gets to the barn-yard. Changing pigs to a new locality, they don't do so well for awhile, but are more or less restless.

President Jones, of the Committee of Invitation to Governor Porter to address the meeting, reported that His Excellency was not in the city, and could not comply with the request.

On motion of Mr. Williams, Messrs. Williams, Cotton and Howland were appointed a committee to draft a bill to be presented to the Legislature, asking an appropriation to aid in defraying expenses of the Society.

On motion of W. E. Jackson, the Convention proceeded to the election of officers for the ensuing year, which resulted as follows:

President—Dick Jones.

Vice President—Emsly Wright.

Secretary—W. H. Morris.

Treasurer—I. N. Barker.

Executive Committee—T. M. Reveal, I. N. Cotton, and E. E. Elliott.

On motion of D. L. Thomas, a vote of thanks was tendered W. A. Macy, the retiring Secretary, for his efficient services in that capacity.

President Jones. I want to say to this convention, the two years I have served this Association, I have found in Secretary Heron a most valuable worker in our interest. He has done twice as much as I or any other man towards bringing about the results we have to-day, and the joint meetings of the State Associations. When we met here on the same week of the Delegate Board of Agriculture in years past, we had to meet in some other room in a different part of the city, and few in number. He hammered on this question until he got this arrangement perfected, and I now move that Mr. Heron be made an honorary member of this Association for life.

The motion was seconded, and Mr. Heron was unanimously made a member of the Association for life, to which he responded in a few well chosen remarks, thanking the Association for honors conferred.

One hundred and sixty-five dollars was pledged by the members as a donation to aid in holding a fat stock show.

On motion of Mr. Jackson, a vote of thanks was tendered the city papers, the National Swine Stock Journal, Indiana Farmer and Chicago Review for their reports made of the meeting.

W. A. Macy. I have here on the table a couple of samples of oil meal; it is very valuable as a feed, and I would invite the members of this convention to inspect it. It has been demonstrated in the Rothamsted experiments that with a mixture of equal parts of linseed meal and corn meal a hog will gain one pound for every four and one-half pounds fed. The manurial value of the offal of animals is very high where linseed meal has been used. It is worth much more than bran or other feed, and can be bought at \$24 per ton in this city.

The convention adjourned *sine die*.

AT WHAT AGE SHOULD SOW PIGS BE BRED?

SELECTED.

As a rule sows should not be bred at an earlier age than eight or ten months. They will then have their first litters when twelve or fourteen months old. This general rule is subject to numerous variations, and for obvious reasons. Many sows are bred when too young, because their owners have not the patience to wait until they are better grown. Besides, it is troublesome to keep open sows safe from the boar when they are in season. Those, however, of the small and more maturing breeds may often without disadvantage be allowed to breed when younger than others.

Unusually large or coarse sows are sometimes bred at an early age, with a view to their becoming finer in form as they approach maturity. But with this fineness there is apt to be an impaired constitution and a lack of strength and vigor in the pigs.

It is thought by some that the earlier young sows are bred the better milkers they will become. Close observation, however, leads to the conclusion that no practical good is secured by such a course of management. Early breeding can never fail to bring such marked improvement in the milking qualities of sows as may be secured by careful selection and feeding when young. Adopting the latter course, we are in line for improvement in other directions, while by the former method serious injury is often done the younger sows. Breeding at a very young age certainly retards their growth, and it is doubtful if they ever afterwards reach the size they would otherwise attain.

The time of year at which it is desired the young pigs should come often determines the age at which the sows are bred. For example, those farrowed in October or November are often bred at less than eight months old, in order that their pigs may come as early as possible the following fall, for if not thus bred when quite young they must be kept from the boar until twelve months old or over to avoid their having pigs very late in the fall or in the midst of winter.

In selecting sow pigs for breeding we prefer those from early spring litters. Such will have the advantage of their first summer's growth on grass, while at the same time they are given whatever grain or other feed, according to location, may be thought best for their highest physical development. If well kept until they are nine months old, they may then be bred. They will thus have their first litter at thirteen months of age, and at a time of the year when the young pigs, with their dams, can soon be put on grass, and have the benefit of this and good weather for rapid and healthy growth.

If the choice for breeding sows must be made from among pigs farrowed later in the spring, they may be bred at eight months old, bringing them, as with the others, to about the time grass starts in the spring.

Young sows selected from summer litters may also be bred when eight or nine months old, but those from fall litters had better be kept from the boar until they are at least twelve months of age, as above mentioned. This may seem a long time to wait, but such sows seldom fail to produce first-class litters and to rear them well. In fact, some of the most successful breeders prefer that all their young sows, so far as practicable, should not be bred until they are about a year old, so that they may not farrow until they are about sixteen months of age.—*Breeders' Gazette*.

PROCEEDINGS INDIANA BEE KEEPERS.

The Fifth Annual Meeting of the Indiana Bee Keepers' Association met in the rooms of the State Board of Agriculture, in Indianapolis, January 15, 1884, and was called to order by Sylvester Johnson, Vice President of the Association, at 10:30 o'clock A. M.

The Secretary and Treasurer submitted their reports.

SECRETARY'S REPORT.

Mr President:

For a general report of the proceedings of the last meeting of the Society, I would respectfully refer you to the printed report of the Secretary of the State Board of Agriculture, Mr. Alex. Heron. Since my last report I have collected dues to the amount of \$29, said amount being turned over to the Treasurer, to whose report I refer for the financial condition of the Society.

Respectfully,

FRANK L. DOUGHERTY, Secretary.

TREASURER'S REPORT.

Balance on hand	56
Received from Secretary	\$29 00

DISBURSEMENTS.

Expenses allowed Secretary for postage, cards, etc	\$13 00
Amount allowed Secretary Heron one-fourth expense for printing joint circulars	2 75
Central Printing Company	1 25
Stenographer's report	10 00
Janitor's fee	2 00
	<hr/> \$29 00
Balance	56

MRS. E. STOUT, Treasurer.

The following question was submitted for discussion :

SPRING MANAGEMENT OF BEES.

Mr Davis. I am sorry that I have been called on to lead out in this discussion. What I shall say is what I practice with my bees. In the spring I practice feeding up my bees a little in order to get them to breed up fast and get ready for the honey season. A little syrup food will cause them to brood up fast. Last spring one of my neighbors was making sugar. In order to prevent my bees from going there I took a ladder and climbed up the body of a maple and hacked it, so the water would run out and dry up before reaching the ground. My bees flocked to this and literally covered that side of the tree where the sweet was running down, keeping them away from the sugar camp, and all went home.

Mr. Johnson. Do you prefer syrup to honey?

Mr. Davis. I think it is just as good, and much cheaper. For feeding in the spring it does not require a first-class sugar, but it should be pure. If I feed in the fall I want a first class sugar.

Mr. Copper. When is the proper time to commence feeding bees in the spring?

Mr. Davis. That depends on the weather. We should first feed when they first get out. They often consume but little honey up to that time. But just as soon as they breed they commence consuming honey. If you have considerable honey in the comb a little feeding before the bloom comes is a good plan, for they will breed up faster. I put my syrup in pans where they have easy access to it. If my neighbors have bees I would not feed that way.

Question. What is your side cushion?

Mr. Davis. I use chaff. I make a frame and tack a cloth over it, and put it in the side of the gum. I have gums that do not require packing.

Mr. Johnson. You use a gum tree, hollowed out?

Mr. Davis. I am not that bad a foggy. I spoke of plank gums.

Mr. Lane. In regard to spring management, Mr. Davis' plan is good as far as it goes. If I were to undertake to instruct this audience on this question, I would prefer to have them in the apiary. As soon as winter lets loose, and weather mild, I first clear away all the dead bees and every obstruction. They will not do any thing until this is done. As soon as the weather is warm enough, I put out plates of rye flour in boxes where they can get it for pollen, before the natural pollen comes, to stimulate the brood rearing; so my hives have plenty of honey, and there is no occasion to feed sweets. I place this flour in a sunny locality, so they can work on it when they want to; and, later, as soon as the maple bloom opens, and they can gather natural pollen, they will not touch this rye flour. There is considerable honey in the soft maple. While feeding in the open air, I used an inferior quality of sugar; but in the hive, I generally took the easiest way of doing it, and that was by making candy. I use from one to two pounds of candy to the colony, placing it under the cushions. After they begin to fly in the spring, all the candy they can eat will not hurt them, unless it is poisonous. I would not want to

feed glucose. One of my neighbors lost about thirty colonies by feeding glucose sugar. Wintering bees is my hobby. I have never lost a colony of bees in wintering, except one, and that one I was experimenting with. An inferior quality of sugar will sometimes kill them; but I have not killed any on pure honey or strictly pure sugar. During the first honey flow, if I have any weak colonies, I throw them together and make a strong colony. I have never yet been able to get new honey from a weak colony, except from basswood. I had a few colonies last year which run down; I had a few choice queens, so I let them build up, and they never made any surplus honey until the last of July. I have taken as much as one hundred and thirty pounds of honey from a colony from white clover.

Mr. Davis. You say that you take the pollen away from the bees in the fall, then you feed flour in the spring. If it should be very cold weather, and a lot of larvæ and eggs in the shell, would they not perish?

Mr. Lane. If the weather is very cold in making that candy, I make one-sixth of it flour.

Secretary Dougherty. The queen will lay eggs and they will hatch. Brood will be sealed over, with no pollen in the hive. I have fed colonies on sugar and clean comb. They undoubtedly lay eggs and seal the brood over, but it will not hatch or come to maturity.

Mr. Mason. My observation has not always been the same in the spring management of bees. You have got to pursue different courses, to some extent. My practice in the spring, when the bees begin to fly, is to examine the colonies and see what condition they are in. For this business, I select a nice, warm day. I do not feed syrup the consistency of honey. If I want to stimulate my queens to brood, I find a rich water is better. I also practice the method of Bro. Lane, that of feeding flour as a substitute for pollen; but have not practiced taking out pollen in the fall; but I do use flour or fine meal, which, if anything, is superior to flour. I observed last spring, which was wet, cold and backward, that my bees suffered greatly on account of it, as they could not get out to gather nectar. I had three or four good colonies of bees, and I wanted to Italianize my apiary. After I got ready, I went to a strong colony and hive full of brood. I removed that queen from that colony and introduced her to another. The weather got cool and I lost some eight or ten virgin queens and queen cells. The bees had nothing to gather in, and destroying the queen, and trying to Italianize them, the result invariably was, they were killed. I finally fell on the idea of feeding my virgin queens, and that healed the whole difficulty, until the honey flow, when I introduced a queen cell of a virgin queen. I put my feed-box to work, and never lost after practicing that. It takes close watching to keep up with them. After I got up to that point, I practiced artificial swarmings, and invariably I could keep that uniform swarm. The past season I only had nine swarms, and I put them back where they were. There was some complaint in our neighborhood, that they could not control their bees, but I had no trouble. I pulled off the queen cells and put my bees back, except one hive. I had one hive that was uncontrollable, and one that I could not extract from, and that hive swarmed without a queen cell in the hive.

“Is maple molasses good to feed bees in the spring?”

DISCUSSION.

H. H. Buntain. I am glad this question has been asked. I am with Mr. Mason in one thing. I used to feed it in the old comb, but it was not very satisfactory. I then changed and made it into a thin syrup, and tried it on a weak hive. If the syrup was a little warm I would not object to it. I fed on until time of swarming, and never had them do better. However, there was one objection—after I got them up I could not control them; they would throw out swarm after swarm. I have had some trouble to get the bees to work on the flour. I placed the flour directly with the feed, and I made it a universal rule to feed late in the evening, as the other bees never interrupted them. They got up splendidly. I think it is as good, if not a little better than sugar.

I. N. Cotton. I have fed molasses for eight years, and never had any bad results. They did well on it. If we bring them up on that, I am satisfied we will have plenty of swarms.

Mr. Lane. We would never have much chance to feed maple syrup if we buy it, as we can not get any that is good and pure. There is too much glucose in it. I have never had any experience with maple syrup.

Dr. Gray. Fifteen or twenty years ago I had several stands of bees. I always made tree molasses, and I universally fed it in a syrup to my bees in the spring, but did not meet with favorable success.

Mr. Davis. I am opposed to feeding maple syrup to bees; in fact, we can get a syrup that costs less. We should handle bees for the profit there is in them. My notion is, you can feed a cheaper grade of sugar and get as good returns as by feeding maple molasses.

Dr. O'Rear. Sweetened water is not syrup. The question is asked: "Is maple molasses good to feed bees with?"

Mr. Mason. My experience has been in feeding maple syrup, that bees are like ourselves, and should be fed decently. I have not experienced any advantage in feeding maple molasses as compared with that made from good extra "C" sugar. I make molasses every spring, and I practice feeding both, and I can not see, as to my experience, as there is any advantage from maple syrup feeding as from syrup made of sugar.

DISCUSSION ON HYBRID BEES.

Dr. O'Rear. My experience in crossing as hybrids is, the first cross is the best honey gatherer. If you cross below they are not so good. The first cross is as good as pure stock, and perhaps will excel the Italian.

Mr. Lane. A cross with a pure blood Italian and Black will improve the Black, but not the Italian, only in the stinging qualities. I get more honey from my pure colonies, yet I have had hybrids to do well. I had a colony of hybrids this season from which I got eighty pounds of honey; but my full blooded bees nearly doubled it.

Dr. O'Rear. The best colony of bees I had last year was not pure. I got more honey from them. Whether the hive was stronger or not, I do not know. The pure Italian is the best gatherer we have got. I would not, however, advise more than one cross.

Mr. Shaw. I am not favorable to hybrid bees. There is much depends on the season. I think the Italian will make more honey in the latter part of the season than the Black bee. I have had Black, Italian and hybrids, and all did well. In the latter part of the season the Italian will gather more honey than in the early part. Black bees will sometimes gather more honey in the early part of the season than the latter part; they seem more hardy. As to the storing of honey, it depends upon the condition of the bees. If there is honey in store they will go and get it.

Mr. Rabb. Several years ago I had some Black and Italian bees. The Black bees did not go out as early as the Italian, and did not make any surplus honey.

Mr. Daugherty. The Italians are more susceptible to spring dwindling than the Black bee. They will go out early in the spring, and often perish on the snow. My experience is that the Italian will work earlier and later than most any kind of bees. There is as much difference as in other kind of stock as among bees. The largest yield I have ever had was from an hybrid colony. I have bees for sale, but I don't sell hybrids. Hybrids are not good in a general way. In some cases hybrids are good honey gatherers and as gentle as Italians, yet, for all that, I wouldn't desire a hybrid.

The Society adjourned until 2 o'clock P. M.

AFTERNOON SESSION.

Convention met at 2 o'clock, President Cotton in the chair.

Dr. O'Rear. I want it distinctly understood that Hendricks county is still ahead, and challenges the State in the bee industry.

President Cotton then read his annual address as follows:

PRESIDENT'S ADDRESS.

Progress is the watch-word of the bee keeper, wherever found, and was the principle that organized this Association, and has kept it alive and will maintain it. The idea of all associations of whatever branch of industry should be to extend the benefits of that industry to the masses, and not to hedge it in to the selected few.

We lose nothing in any science or art that we may have attained by giving that knowledge to our fellow-man, that he may not only benefit by our experience, but return his own likewise.

We have no need to fear the over-stocking of our State with bees in the near future. We have but a small number of colonies in this State, comparatively. The statistics of April 1, 1883, show but 78,526 colonies, and that they gathered

but 798,368 pounds of honey. Mr. E. T. Sturtevant, of Cuyahoga county, Ohio, an extensive bee raiser, in an article published in 1857, says that, in his opinion, on an average 200,000 pounds of honey go to waste in each county annually for the want of bees to gather it. Let us reduce that one-half for Indiana, and say that the honey-bearing trees and plants produce 100,000 pounds per county annually, and we have 9,200,000 pounds of honey. Of that amount we gathered in 1882 798,368 pounds, leaving 8,901,632 pounds ungathered. With this estimate and these figures before us we need not be alarmed about over-stocking the State with bees. This ungathered honey at the present retail price would bring nearly \$2,000,000, which now is a total loss to the wealth of the State, and I have no doubt that the honey yield can be materially increased by the special cultivation of the honey-bearing trees and plants.

While there has been great progress made in bee-keeping in the improved hive, comb foundation and the art of feeding and handling bees, it appears that the masses and the press often get very erroneous ideas as to what foundation is made of and how it is used, and equally as erroneous idea of what we feed for. If we could impress upon the public mind that comb foundation is made of beeswax and that the feeding of sugar is not for the purpose of obtaining surplus honey, but is fed when the bees are short of honey to sustain them and aid them in raising their young, that they may be in the proper condition to gather the honey crop when it comes, we would get rid of much prejudice against honey. I have been asked often of what I make comb foundation and what I feed to get the best honey, the questioner not knowing that honey is not manufactured but simply gathered from the flower, stored in the cell with the addition of a little acid received from the bee; and that notwithstanding the bee may carry sugar into his hive and place it in the cell, it is sugar still.

As to the condition of our Society we are harmonious and prosperous. As to progress and work of the society I would refer you to the report of your Secretary, F. L. Daugherty, who has ever been awake to the interest of the Society, and as to the financial condition I would refer you to the report of your Treasurer, Mrs. E. Stout.

I feel gratified at the result of a recommendation made in my last address to this Society that there be an apiary established at Purdue University for experiments. President Smart, a short time since, informed me that he would start one in the spring.

This is our Fifth Annual Meeting and we are still on advancing ground. Let us push forward in investigation, for the masses are yet crying for more light in regard to the little busy bee.

DISCUSSION.

Mr. C. F. Muth, of Cincinnati. Last year we had a very large crop of honey in our neighborhood. Beyond our neighborhood the honey market has been slow, especially that of extracted honey. I believe the most money is in extracted honey, especially in our market so far. If you have at present a large stock of this kind of honey on hand that you can not dispose of, you can keep it for a few months and the best will sell with no loss to the honey. The quality will not be

damaged. In producing comb honey it is often damaged before we can sell it. I have quite a lot of comb honey kept over from last year, it gets old and won't sell. Our present market for extracted honey, we are letting slip, and comb honey is much more in demand than last year. The market for comb honey before Christmas and New Year was splendid. If the honey is nice it will sell even if some of our friends have extravagant ideas as to the price of honey. Comb honey sells readily at about twenty cents—higher than that it is slow sale. I still advocate extracted honey more than comb honey. This year extracted honey will doubtless be a serious loss with some of us. However, I hope we will not be misled by the recent dull market; we will yet have ample chance to sell all the extracted honey we have got. I am certain of it. My own dull sale for the past few months was not caused by the large surplus on hand, but manufacturers who use honey largely not demanding it. There will be a large demand for extracted honey all the time; if the market is dull it will be temporary. Let us not be despondent in raising too much comb honey. I have been using comb honey principally in pound sections which sold readily, indeed. I have such a large demand for honey in pound sections that I do not care for half pound sections, because there is no demand for such, and for pound sections there is an abundance. It should be raised in one pound sections for the market.

The Secretary read the following communication from Prof. Smart, of Purdue University, relative to starting an apiary in connection with that institution :

Hon. I. N. Cotton, President Bee-Keepers' Association :

I have devoted considerable thought to the suggestion which you made to me some time since, that Purdue University ought, in some way, to encourage apiculture. After consulting with Prof. Latta, we have concluded to recommend to the Board of Trustees, that the effort be made to encourage that branch of economic industry. I doubt not that the project will be approved, provided the Legislature makes an appropriation sufficiently large to enable us to carry on our present work and to add what is suggested. Purdue ought to spend at least \$5,000 annually on its experimental station. With this amount for this purpose, we could do great things for you and for others interested in the agricultural and other economic industries of the State.

I may add that a half success is only a mild term for failure, and as Purdue can not command funds for a first-class apiary at present, it seems prudent and for the best interests of all concerned to postpone the undertaking till money can be secured to make the enterprise creditable to the University and a real benefit to the State.

Very truly yours,

J. H. SMART.

Mr. Davis. How long can we keep extracted honey without spoiling?

Mr. Muth. Forever, in a dry place.

"Is it best to winter on the summer stand or in the house?"

DISCUSSION.

Dr O'Rear. I do not think this Society is able to answer that question. There are almost as many diversities of opinion on wintering bees as there are members of this Society. I have formerly wintered in the house, but this winter I am wintering out of doors. Some of my stands are covered with quilts and others with thin pieces of coffee sacks. I was inspecting them last Sunday, and I found that those which were covered with the thin coffee sack were keeping just as well as those which had more protection. The corners of the top story were a little raised so as to give them some ventilation. I had one colony that was down solid, and they were dead.

Mr. Griffith. I am a new beginner in the bee business. Last spring I got a hive of Bro. Catterson. He did not know what strain they were until he brought them down to me. There was not a double handful of bees and a tablespoonful of honey in the hive. He wanted me to try an experiment on them, and from that one I have three thrifty stands. I have a cap on the top of the hive, putting two of my section frames above, and put a half-dozen in the center, leaving a cloth in the end and center, with a thin muslin cloth spread over the frame. When winter came I took these frames and tore up each of these cloths at the end, and spread the other, leaving about two inches at the end of the frame, so that if any get above they could go down and not die. The result is, the bees from that small bunch are very strong, and have plenty of honey. They sit outside, and are doing finely.

Mr. Lane. If a man winters on the stand, he thinks that is best; and if he winters in the house, he thinks that is best. Some will have good success and some not. Some bees die of dysentery. My bees may winter nicely on the stand, and my neighbors' bees die of dysentery on the stand. Some may have them set out, and they live with upper ventilation, while others do not. It can not be in the mode of wintering altogether. There must be some ventilation, up or down, or otherwise. One man will tell you they must have upper ventilation; others contend it should be neither upward nor downward.

Dr. Gray. My object was to get some light on the subject. I wish to hear this question fully discussed.

Mr. Lane. Bees require ventilation. They breathe as animals do. It is not ventilation that causes the death or life of the bees. A successful man can winter them with or without ventilation. It is my idea that the food is the cause of death or success in wintering. The pollen in the hive causes them to brood early in the spring, creating dysentery. I make my bees come out pure and healthy. They must have this pollen removed. If we do this we will never suffer any loss from dysentery.

Mr. Muth. I do not believe a word of it. I protect my bees, and can always depend upon those stands that have the most honey pollen, and do not believe that we need to take away pollen to make our bees healthy. There is no harm done by leaving the pollen. If the hives were properly protected in the winter, that healthy air is kept up for proper ventilation during all the season, and the sweet collected kept sweet, our colony is all right. Dysentery is caused by cold or improper protection. The bees, feeling uncomfortable, crowd together, creating undue heat, eat-

ing honey that has soured, causing dysentery, and that sour honey is caused by improper cover. If the honey keeps sweet, the bees are all right, but if it sours they get sick.

Mr. Shaw. I am in favor of upper ventilation. I have 250 colonies; as to my brother here, moving his pollen away, I move from the outside to the center of the hive.

Mr. Gulley. It is an important thing to take care of them in winter. If he can do this he is a successful bee keeper. A few years ago Mr. Muth told us that they must have ventilation above the cushion, and clearer the weather the more ventilation they must have. If that is wrong, I want to know it. I am losing some of my bees, and I am anxious to hear this question discussed.

Mr. ———. There is no one rule that will hold good in all cases. I bought, in 1864, a stand of bees—a large box with another box inside, making a double wall with no ventilation, except a wire screen below. I never took any honey from it, but kept it as a stand-by, and bees never died until this fall, when they all died before cold weather. I use the American hive; it never did any good except the swarms we got from it.

Mr. Mason. I have been taking close observation of Bro. Shaw watching his bees in his house. If Mr. Shaw would pack his bees in his winter house as on the summer stand, he would lose his bees. Mr. Shaw has this coffee sack over his bees and raised lid and three inch auger-holes. His room is $8\frac{1}{2}$ by 10 feet. The number of stands which he puts in would bring the temperature so that these bees could live there without a lid on them—thus air would always escape and ventilation would keep the room dry. What is the trouble with our bees dying in the winter? My opinion is, it is not the honey or pollen, but this cold damp atmosphere that forms in the hives. That was what got away with our bees three years ago, when they were out on the stand.

Mr. Muth. A few years ago I was cleaning out my cellar and found a jar of honey in the corner with a paper tied over it and a board laid on that. How the honey got there I do not know. On the top of this honey was a skin almost as thick as my thumb; under this skin was sour honey, while lower down it was thick and sweet. Standing in a damp warm place would make it sour to vinegar. If that same honey stood in the garret instead, it would be sweet as ever.

Mr. Lane I have never yet found any ice or frost among my bees that I pack. Thermometer 27° below zero and no frost. I keep wheat chaff around the hive.

Mr. Abbott. I have never lost any bees. I had every thing wrong and still they come out all right. The only ventilation I have is at the entrance, giving plenty of honey and pollen. It is simply for want of attention if we lose them in the winter.

“Whether drones produced from eggs of worker bees are perfect and capable of bearing bees?”

DISCUSSION.

Dr. O'Rear. Worker bees don't lay eggs.

Secretary Daugherty. I have seen them lay the eggs.

Dr. O'Rear. Mr. Daugherty certainly did not see a fertile worker, it was a dwarf queen. I have four or five little queens, but when they get out you could not tell them from a fertile worker bee, they are so near alike. Brother Daugherty says he saw her lay her eggs; it was a queen, what is called a fertile worker, and her progeny would always be drones.

Mr. Vincent. How does it come that at times we do not find the queen cells, and sometimes we do in four or five days?

Dr. O'Rear. I have one colony that went through the entire summer and they never set up a queen cell, and never a drone hatched in the hive, but I have put queen after queen, and young brood and never had a drone in the hive.

Mr. Lane. What Mr. Daugherty states I think is all true. I am satisfied that workers will and do lay eggs, but I have never seen a flying insect from them.

Secretary Daugherty. Our friend, the Doctor, is right; all workers are imperfect queens—undeveloped females. Under certain conditions workers do lay eggs, but when they hatch they will produce drones only. This fall we had a double handful of drones hatched from worker bees. Under the microscope we could see no difference as to their formation; they looked perfect drones to a certainty.

Mr. Muth. There are some queens hatched, and it is difficult to tell them from the workers. Some of them are quite small and look like fertile workers, which are known to us. They do lay eggs and look like workers; workers lay eggs that hatch only drones, laying half a dozen in a cell.

Dr. O'Rear. How long does the egg have to lay before hatching?

Mr. Muth. They hatch in the larva state in four or five days, and make a cap about the eighth day. I can not tell how long this has to be to make a queen.

Dr. O'Rear. The bees, for want of proper advantage, take the next best. The larva is too old to receive that kind of nourishment to produce a full queen. Therefore it produces a queen capable of laying eggs, and you call that a fertile worker. The bee is too small to increase the size of the body; yet it receives a sufficient amount of nervous stimulant to enable her to lay eggs, and that is what we have in those small bees. If you let them pass a certain period they will never have a fertile worker in my opinion. Bees will not have two queens.

Mr. Daugherty. If you will take a worker larva that is from three to four days old, and put it in a queen cell and fill with queen pap food, it will produce an imperfect queen, and show the features of the queen.

H. H. Buntain. The question should be turned this way. If those fertilized workers are a disadvantage to the colony, we want to know how to prevent it. It is easy to find a fault, but difficult to remedy it.

Mr. Lane. Next summer, when the thermometer stands at eighty degrees, take five or six frames of sealed broods, put them in a hive, and they will hatch and make worker bees. Let it stay there in the honey season, and you will have an abundance of eggs soon. I do not think anybody will be bothered with fertile workers

if they have a queen or unsealed larva, if you take this to the end of the year. The imperfect queen will tear down every queen cell in the hive. We should get rid of the imperfect queen.

Dr. O'Rear. He suggests the very thing I did last summer. I had a colony of bees that I worked on all summer to get them to produce a queen. I took sealed brood and kept it there with a sealed queen cell on it, and they never did hatch a fertile worker nor laid an egg from early spring until they died. They hatched out the queen cell, and destroyed the queen that was hatched. I want to know why they did it?

Mr. Muth. To prevent fertile workers is to keep young bees in the hive. You can have fertile workers and you can remedy them by giving them combs with hatching brood, and then you can give that queen with impunity and generally give them young bees. They will not accept a queen or cell. A colony wants young bees. They make an exception in early spring, when they have old bees to do the house work. When young bees are hatched work begins in earnest. You never have a hive to overspread, unless you have young bees; when honey comes in you want that kind of bees.

Dr. O'Rear. My hive was full of young bees and hatching all the time.

Mr. Muth. Then you had no fertile workers?

Dr. O'Rear. I looked every day and I think we had no fertile workers.

Mr. Shaw. We should not be over two days getting rid of those fertile workers.

Mr. Muth. Did you say you could not introduce a queen?

Dr. O'Rear. I tried to hatch a queen. I brought one from a sealed cell and never saw it after it was hatched. I thought she was lost.

Mr. Mason. I had a colony last summer, with what we called fertile workers, which gave me some trouble. My remedy was to take every frame of bees of that hive and shake them off down onto the ground; then I set in a frame of eggs and young bees and they raised four or five queen cells, and the bees all went back into the hive.

Mr. Griffith. I understand the doctor was trying to raise a queen, and taking every time the frame that was full of young broods capped over. If I could not do better than that, green as I am, I would quit. If I had a gum that was queenless I would get fresh eggs and let them make the brood themselves.

"Will using the extractor prevent swarming?"

Taken by consent, *No.*

DISCUSSION.

Mr. Muth. I do not think we can prevent swarming altogether, but we can control it considerably and *almost* prevent it. We must give the queen ample chance to lay eggs and the worker bees to store honey; we can do this easiest by extracting. If we give them large space to fill up in the upper story we can control swarming better. We can prevent swarming if the queen in the brood chamber has plenty of chance to lay eggs, and they have plenty of room below. If our queens in the brood chamber have got all the frames full with brood, then there is always bee hatching going on, so as to keep the queen busy. The next best is extracting honey.

Mr. Schall. There is no system that will entirely prevent swarming. It is not desirable to prevent swarming always. We find in hives that are extracted year after year and not swarming that the queens are three or four years old. If we undertake to prevent such hives from swarming they will through the summer season build a number of cells, and if these cells hatch on a rainy day, when you extract only on a nice day, they will swarm in spite of you; if you destroy the queen you destroy the worth of the colony; they must have a queen or they are worthless. My experience in extracting honey in our locality in the last ten years is that nine cases out of ten extracting will prevent swarming. Where I find a hive that swarms it is under the condition that the queen is not in good health. A good healthy queen in her prime, with abundance of room and honey slung out, in our locality, not one in ten will swarm. Other localities are different.

Mr. Lemming. I agree with these gentlemen here, with the exception of swarming. I give them a good prolific queen, keep them cool and shaded as much as possible, giving them plenty of room, and when very strong take the cover off entirely during the rush of the honey flow. I have frequently taken the lid off entirely and let the heat escape. Extracting should be done at the proper time and you can keep the swarm down without doubt.

Mr. Daugherty. Swarms can be controlled by the proper use of the extractor and the apiarist watching his business. If you wait until the honey is entirely sealed over, they swarm if the queen gets all full below and the workers full above. Bees can be crowded, but when there are too many they will swarm. I throw the honey out as soon as a few cells are capped out. With proper care and use of the extractor take away the brood and keep your stock of bees strong and gathering the honey during the honey season. It will control it.

"Will glucose kill bees if you winter them on it?"

Answer. It will.

"Will it pay to winter a queenless colony of bees?"

DISCUSSION.

Mr. Muth. I answer "yes" and "no," both; there are exceptions. Among the rest, I had a colony that was queenless by the commencement of February. The weather then was fine, but the spring was stormy and windy. Later in April, when a friend of mine called to see me, I showed him a fine colony, but I found the colony queenless and no life there; the queen and some of the bees were sticking in the cell and others gone. My friend remarked what had become of them? They doubtless all went out for water, the wind blew them down, so that few got home, and they could not eat any more and froze. In looking over the colony I found the queen was yet alive. I blew my breath on her and she became first rate, and I gave her to this queenless colony, thereby saving both. Some of my bees dwindled down and suffered very much, indeed.

Mr. Shaw. I winter my bees in the house, and supposed that all had queens. Taking them out on the 16th of February, the drones were flying nicely, on looking in I found as many as three had drones in cap form and plenty of bees, but no queen; they had fertile workers and the rest were drones.

"Will drones mated with Italian queens be pure Italian drones?"

Mr. Muth. I have got one experience. We had at one time a pure Black; one of them swarmed; the queen was young, hatched after the swarm was gone; before the drones and queen were pure brown like the Italian, but her drones showed yellow bands.

Dr. O'Rear. How far were you from the Black bees?

Mr. Muth. I had but two stands together.

"Should bees be fed in cold weather?"

DISCUSSION.

Mr. Lane. I do not think any enterprising bee keeper will have occasion to feed in cold weather, but we had better feed them than to let them starve; at the same time I have not had much experience in feeding.

Mr. Griffith. Last fall a year ago I bought on Mr. Cofman's farm a bee tree, and cut it in November. I put those bees in a hive and took them through the winter without using a particle of honey; used nothing but coffee "A" sugar on the summer stand out of doors.

"Do we ever find pollen packed in drone cells?"

Answer. Occasionally.

"What is the best way to tame cross bees?"

Mr. Muth. The best remedy is a good Christian patience.

Mr. Griffith. If I desired to tame the bees and they had plenty of honey, I would use them rough enough to get them to eat honey, and if they would eat honey they would be tame enough. If I did not have honey I would put my veil over my face and go to work.

"Does the queen or bees control the sex?"

DISCUSSION.

Secretary Daugherty. This is a catch question. The queen lays all the eggs; she undoubtedly controls the sex laying either male or female eggs at will.

Mr. Rabb. Two years ago I had a colony of bees to swarm. In hiving them I did not get the queen hived in the colony, and she lay out four or five hours on the ground with a few bees. I got the queen back to the hive and she laid, not as regular as before, yet she got away afterwards and commenced a lot of queen cells and raised a lot of queens, and some queen cells were left. I opened one of the cells and there was a live drone in it.

Mr. Muth. Drone cells look very much like queen cells at times, and it is difficult to tell them apart.

Mr. Rabb. This was not a drone cell as large as a queen cell. The worker cells are filled out a little longer and higher than others. I do not raise many drone cells.

Mr. Daugherty. In Mr. Rabb's question as to bees swarming, he says the queen got lost and chilled, and afterwards became a drone layer, and her eggs produced drones only, while Mr. Lane thinks that the eggs were made to produce workers. There are so many things connected in this it is possible that another queen got in there and laid those eggs. I have seen things occur sometimes which seemed al-

most absurd, yet nevertheless they were true. Those eggs were no doubt laid by a queen, very likely by the old queen, before she left there, and they were probably drone eggs. The comb cut out and put in there may have contained drone eggs. There are many questions of this kind coming up, and we can not determine just what makes it.

The election of officers was entered into, which resulted in the election of Mrs. Robbins as President, F. L. Daugherty, Secretary, and Mrs. Stout as Treasurer.

The following resolution, offered by Mr. Johnson in regard to a letter submitted to the convention by Prof. Smart, of Purdue University, was read and adopted :

Resolved. That the thanks of this Association be and are hereby tendered to President J. H. Smart, of Purdue University, for his interest in apiculture as indicated in his letter read here to-day, and that we hereby pledge that our individual and aggregated influence shall be used upon our next Legislature for an appropriation sufficiently liberal to enable the University to conduct satisfactory experiments in our favorite industry.

Mr. Mason and Dr. O'Rear were appointed to invite Governor Porter to address the meeting at some suitable time before the adjournment.

Mrs. Robbins, President elect, took the chair and thanked the Society for favors conferred.

The Society adjourned until 7 o'clock.

EVENING SESSION, 7 O'CLOCK.

President Robbins in the chair.

The question for discussion, "How long will larva live after hatching without pollen?"

DISCUSSION.

Dr. O'Rear. I am not able to answer that question. The point I wish to raise is this, How long will larva live after hatching? The larva don't eat honey until after it comes out of the cell, and if there is nothing to furnish nourishment it dies.

Mr. Daugherty. The question is hinged. The larva don't eat pollen, the bees consume honey and pollen, and form a pap with which the young bees are fed. Sometimes a larva will drop out in two hours, while others which have plenty of pap to float in will live several hours.

Dr. O'Rear. How long will it live in the hive without anything to eat?

Mr. Muth. It is a hard matter to decide. If it was not for the pollen the larva would die.

Mr. Daugherty. I do not see what he wishes to get at. The larva could not stay there if there were no bees there. We can keep it warm by the stove as well as in the hive. Take a full comb of sealed brood, if the temperature is right at all it will go ahead just the same as in the hive.

Dr. O'Rear. If there is nothing but honey will larva live at all?

Mr. Daugherty. You may feed them on syrup, and the larva sealed up, and they will live. If you feed honey feed a darker grade, they will live much longer than on good. Some of this dark honey looks like mush, that is full of pollen. In feeding the larva on honey some did hatch out while others died. The honey we fed contained pollen.

Mr. —. If we put them on dry comb and feed them on dry sugar or rock candy, they would not hatch the brood.

Mr. Lemming. I took a swarm of bees, for an experiment, and put them in a dark room and fed "A" sugar, keeping them until the brood commenced hatching out. I did this to see if comb could be made fat on sugar.

Mr. —. A friend had a colony of bees taken care of through the winter on sugar, and raised a crop of bees. It was what we call a dead colony of bees, and the gentleman threw them out, but found the queen and brought her to. After the queen had been restored, she had a disposition to fly away. He went and gathered up all those bees he had poured on the grass and put them in the hive on the frame of comb, with one frame of brood, and set the frame of honey and brood in the corner of the kitchen, and that stand came out in the spring the strongest bees he had. I asked him if there was any pollen? He said he was unable to discover it. I have my doubts about bees going through and raise them without it. The bees had nothing but what he gave them, and they came out nice in the spring.

Secretary Daugherty. In making experiments of this kind we must be careful. It takes but little pollen to satisfy that small amount of brood, and it is easy to cover it up with honey. We never thought to examine it carefully. After bringing it to a finer test, we took clear honey, with no pollen, and fed on "A" sugar; but we never could get any brood; it was sealed over in a few days, but would not come to maturity.

Dr. O'Rear. I want to know more about this question. If you feed nothing but "A" sugar, it is a new theory in bee keeping.

Mr. Lemming. My experiment was to see if they would build comb from sugar. The larvæ was hatched, and as soon as I saw that they would build comb from sugar I quit. I think from this that larvæ would hatch, but not certain that they did hatch.

Dr. O'Rear. The gentleman stopped when he was finding out what was occurring. Larvæ hatches from the eggs, and stays three or four days, and cells over, and the bee hatches out and feeds on the honey. It does not take much pollen for the brood at first.

Mr. Schull. I have larvæ hatched out considerable size; before next day it was cleaned out, and kept on doing so, and never been able to raise any bees.

"Do bees require salt?"

DISCUSSION.

Mr. Muth. Bees do require salt. My bees set around my salt barrels, especially in the spring. I have a little vessel in my room in which I keep salt, and they help themselves to it quite lively.

Mr. Schull. It is of good advantage among bees. Six or seven years ago I had a disease among my bees, something like dysentery, and they were in bad condition. I fed them liberally with good syrup, and in five or six days they were all right. I took a handful of salt; it keeps ants away, also.

"What is the most desirable width for sections."

Mr. Muth. Some parties are raising comb honey with separators. Those that do so can use two and one-half inch sections and raise very nice comb. But if combs are raised without separators I would not want them more than one and three-fourths inches. I make my sections one and seven-eighths or one and three-fourths.

Mr. Shaw. I make mine one and seven-eighths inches, though I have no experience in pound sections; I speak in regard to two pound sections. The deeper the section is, the slower it will be filled and get less honey finished up; this is the main object in getting the largest amount. For that purpose it is necessary to give them all season, and they will rapidly finish them.

"Are Italians longer lived than Black bees?"

DISCUSSION.

Mr. Catterson. I find that Messrs. Muth and Schall and several other gentlemen in speaking of bees and sections refer to the Langstroth hives. There are a great many persons who do not use this hive. In reference to the section frame, there are many who use nothing in the upper story, except frames similar to the brood chamber. I would ask, if it is necessary that such frames should be broader than those below, in order to get comb honey extracted.

Mr. Muth. The shape of the frame has nothing to do with the honey. I do not know whether the Italians are longer lived than the Blacks. Whenever I have Black bees among the Italians I find that the Italians are the most lively in the early spring. The Blacks don't move until the Italians are out. The result is we have early stronger Black stands than Italian.

DISCUSSION ON BRICK HIVES.

Mr. Davis. My friend Gulley and I have the brick hive; we think it is a success. We are satisfied with it both winter and summer. It is cooler through the summer and warmer during the winter. We have got the double-slot hive; the brick laid up edgewise with an open space all around. Our hive takes the Longstroth frame, using the same frame as in the other hive. There was no frost in the cold weather lately. They are lively and not down close, as in the plank hive. They have cushions on each side; it prevents robbing. The robbers have to go five or six inches to get into the hive. My hive is built on a one and one-half inch plank, nailed to a four-inch scantling.

Question. How many bricks does it require to make one?

Mr. Davis. About eighty, I think, will make a hive. Last winter we had only two brick hives, and the bricks were laid down flat, and no dead air space. One of the colonies superceded the queen in the commencement of the honey season, and

the result was we only got 180 pounds of honey, while the other did not supercede, from which we obtained 285 pounds of honey. The plank hive had the same treatment, but did not get more than 100 pounds to the colony.

Mr. Lann. I do not know anything about brick hives. Over the water they say their hives are similar to tile.

Mr. Davis. There is a difference in these hives as compared with tile. In the brick hive we handle the frame just as we do in a plank hive. The same frames may be used.

Mr. Kennedy. Do you attribute the extra amount of honey to the coolness of the hive in summer?

Mr. Davis. Not altogether. It comes out in the spring a great deal stronger than when it went into winter quarters. The cold snap in the spring did not affect them. When the honey season came they were full, and we kept extracting. We have no swarms.

Mr. Mason. I wish to ask Bro. Davis if the bricks are set in lime mortar or cement?

Mr. Davis. The brick are laid in lime mortar. Where they are finished up at the top, where the end piece comes in, put lime mortar to cover over, then the cap fits on and is bedded in cement.

S. Johnson. Are we to understand that bees don't die in this hive?

Mr. Davis. Of course the old bees die off some, but no dead bees remain in the hive. When spring came the hive was full of bees. The old bees die off some, but brooded up and had more bees than in the fall. In my plank hives the bottom was covered with dead bees. The brood was chilled and the bees ran down very weak.

Mr. Saul. We can not make a hive out of tile unless they are flat. We have to have them made out of brick.

Mr. Davis. If you lay the brick down on the ground, the south side will thaw first and let your hive down. It will break the wall. In order to remedy that we make a platform of $1\frac{1}{4}$ inch plank.

Mr. Math. I have a friend living in a brick house, and when the sun shines on the south side it is unbearable. These hives must be shaded.

Mr. Davis. Does this house have an air space?

Mr. Math. I suppose not.

Mr. Davis. That makes a difference. You may set up two bricks, side by side, by the fire; the brick next to the fire will get hot and the other will not, because there is space between; but if you lay it down or put them together it heats both, but so long as you keep them apart it don't heat. Where there is a dead air space it is difficult to heat.

"What does it take to make a successful bee keeper?"

DISCUSSION.

Mr. Math. Bees should be kept comfortable all the time, whether in brick or wooden houses. The old bees, when not out in search of honey, lay out sometimes and cover the whole lower side of the hive—like soldiers in camp-life, rather sleep out of doors.

Mr. Daugherty. I do not think there is any perfect bee keepers. I do not know what it takes to constitute one.

Mr. Johnson. I am only a beginner in bee keeping. I have summed it up this way: First, an interest in the art; second, patience; third, perseverance; fourth, much reading; fifth, attend all bee conventions, talk but little and hear much.

Mr. Cotterson. To be a successful bee-keeper is, according to my friend Davis' idea, to use a brick hive. If by using that kind of hive we can realize two hundred and eighty pounds of honey from a single colony, almost double what is produced from plank hives, he is certainly the most successful bee-keeper. Successful bee-keepers are those who make it pay.

Mr. Davis. To my mind a person who is a successful bee-keeper comprehends a great deal. The building of brick hives is no sign of success. A successful bee-keeper, in the spring of the year, has got to lay off his coat and go to work and stay with them. He must watch over them and see if they are strong and ready for gathering honey when the honey season comes. We must provide feed for our bees, the same as a farmer provides feed for his stock. According to my idea of the matter he will not be a successful bee-keeper until he does—at least in our section of country.

Mr. Kennedy. It don't require brick hives to make a success. We have a man in our settlement with wooden hives, who realizes one hundred and fifty pounds of comb honey to the colony, selling it at twenty cents; I think he is a success; his whole soul is wrapped up in the business. We should have everything in readiness when the work comes on, and not wait until the bees are ready to swarm.

Mr. Daugherty. Brick hives were used many years ago in Ohio, Illinois and Michigan. It is desirable to keep them cool and nice, but the year round they are better in the sun and in a thin wall, than a thick one. There are tile hives and concrete hives, but they are not worth much; they are heavy and inconvenient. There is one benefit, however; they absorb moisture, and that is the only recommendation they have.

Mr. Gulley. It is difficult for a brick hive to get wet. A double-wall hive is bound to be dry.

Mr. Daugherty. The same thing claimed for these double-wall hives has been claimed for chaff hives. Dr. O'Rear packed in the house last year, but take in the whole general practice: there are times when double walls made out of cast iron are a benefit to bees, but we must take into consideration the whole year.

Mr. Gulley. Brother Daugherty has seen brick hives, but never saw one that Mr. Davis and I have.

Mr. Shaw. These things will do to experiment on for one or two hives, but we expect to raise tons of honey we want something that is moveable.

Mr. Lemming. If a man keeps bees he wants to be so he can fill orders, and do that we will have to use some kind of standard hive, but we can use some other kind to experiment with.

Mr. Davis. I can take a swarm out of mine and send to Texas just as well as he can.

"When is the best time to sow Alsike clover seed?"

DISCUSSION.

Mr. Kennedy. Spring of the year.

Mr. Mason. You may decide that spring is the best and proper time to sow. At the same time you may sow clover seed in the spring, and not be as successful as at other times. If you sow in the early spring the clover gets in the crook and the frost kills it. I never sow until after the 22d of March, and since I have practiced that I have had good success. My experience runs back as far as twenty-seven years in this thing of sowing clover. I used to sow in February or the 1st of March, but I had not near so good success as when sown later in the spring. My Alsike made the best stand as I got it thicker than the red clover. I sow my Alsike on good land, and it grows from twenty-four to thirty-six inches high.

Mr. Kennedy. I have no regular time to sow clover seed. There is a time to sow, and that is to be selected with judgment. We know the heavy spring rains leave the ground soaked and presents a hard, glossy surface which makes it difficult for the seed to get through. If you wait a little longer the ground becomes cracked; if you sow then, you will rarely fail to get a stand.

Mr. Cotton. I have been a farmer all my life. My father always sowed his seed in February. I think I have never failed when I sowed in February. I sow either a little early or a little late, so as to miss the freeze. If we sow late and the season is dry, we will suffer.

Mr. Mason. I have practiced this for twelve years, and never failed. I sow after the 22d of March, and usually have a good crop. However, some sow earlier and meet with good results.

"How was Bokhara clover in 1883?"

DISCUSSION.

Mr. Muth. There is an abundance of this clover around Cincinnati, at the foot of the hills. I have seen this clover covered with bees. Last year, however, our bees did not find any nectar off of Bokhara clover. I used to think the yellow Bokhara clover did not furnish nectar. I had not seen any yellow until last summer. During 1883 the bees got honey from the yellow blossom, while they did not visit the white bloom.

Mr. —. What time does the Bokhara bloom?

Mr. Muth. It blooms from the latter part of June until October. There are some blossoms coming out all the time.

"Why is it that bees work on red clover and refuse to work on white clover?"

DISCUSSION.

Mr. Lane. Bees leave white clover when it does not create any nectar.

Mr. Cotton. I have sowed buckweat, and sometimes there are no bees on it, while at other times there are.

Secretary Daugherty. At times bees will be at work on low ground, but on high ground, at the time, they may not find anything. It all depends on atmospheric conditions.

Mr. Mason. We witnessed one of the best crops of bloom last season we have had for years. On the third Sunday of June you could not see, notwithstanding the pastures and lots were covered with bloom, a bee on it. I was at my apiary, and they were working as hard as they could. I walked over to a field of red clover and they were thick on that. It has been said that the Italian bees are better honey gatherers than Black bees. The Black bee can not penetrate the red clover. The Italian bees like the thistle bloom. It is one among the best honey flowers we have.

Mr. Cotton. It is the state of the atmosphere, as Brother Dougherty has stated. I have found bees in the valley, while on the hills there were none.

Mr. Muth. Black bees work on red clover as well as Italian, and will find the honey. They work together splendidly.

Mr. Kennedy. We need a variety of bee pasture, particularly clover. Stock men need this. If the farmers get to understand this and take care of their crops better, the bee man would get more honey. I hope there is no farmer so selfish as not to sow Alsike clover when he can get as much feed out of it as any other.

Mr. Lane. Does any member know when the Alsike failed to produce honey when in bloom?

Mr. Muth. I have seen it fail very much indeed. A few years ago there was a severe storm came in the vicinity of Cincinnati. I had a field of Alsike clover. A few days before the storm the field was full of bees; after the storm there was not a bee on the clover, and the weather was nice. It is the atmosphere that creates honey.

Mr. Guley. The Simpson plant is a good honey producing plant; my friend Davis and I have about 6,000 plants. After white clover fails, this plant keeps them busy until frost. I am satisfied that on those 6,000 or 8,000 plants I have seen three bushels of bees. If we will raise the Simpson honey plant we will have plenty of honey. It is a biennial. I plant in the spring and cultivate as we do corn.

The meeting adjourned until 9 o'clock Wednesday morning.

WEDNESDAY MORNING SESSION.

Convention met at 9 o'clock, President Robbins in the chair.

The following were appointed as a Printing Committee: Mr. Daugherty, Dr. O'Rear and Mr. Mason.

"When is honey ripe?"

DISCUSSION.

Mr. Muth. We know that all honey is fresh in open cells, and much that is called capped. When fruit is ripe we think it will keep, and when honey is so it will keep we call it ripe. If we put honey in bottles or barrels before it is known

to be ripe, it will expand in crystals and get a little sour, but standing in open vessels it will not. I don't believe honey is ripe in the cell or cap. We have extracted new honey, sometimes, and found it ripe. We should not bottle our honey unless it has good evaporation. It is not necessary to keep it through the winter in order to give it a good flavor; honey has got its flavor as soon as put in the cells, and it gets its flavor from the source from which the honey is derived. Honey is ripe after it stands for evaporation; sometimes a day or two is sufficient and sometimes it requires a month.

Mr. Davis. Honey should be kept in a dry, warm place—a cellar is too damp. While it is ripening it must be in the air; after ripening you can put it in bottles and cork it up, and not before. If you put it in the cellar in open jars it won't ripen.

Mr. Lane. I have no great experience in extracting honey and ripening it. Extracting is generally done in early, dry weather. I use tin cans holding six gallons, cover them with cheese cloth or mosquito bar until the honey is dense. If the corks become loose, I remedy it by seeing that the room has a high temperature. Honey sealed up by the bees is not ripe; it will be as thin as any extracted honey. Bees get in a hurry, sometimes.

Mr. Kennedy. What kind of vessels would you have for ripening honey?

Mr. Muth. If you use a barrel and put a cloth over, or a tin can with a cover over, it is sufficient. If the stand is in a warm room it is sufficient if you have small buckets with broad covers. Last fall I had several barrels of clover honey from New York. Upon examining it I found it was thin, and I could not sell it in that shape, so I took and put it in a tin can just opposite the stove, and after awhile it got as thick as any.

Mr. Kennedy. I have some honey made last summer which has got to crystall at the bottom now.

Mr. Muth. I get honey from Louisiana, made from sugar cane. I can leave it out all winter and it will not crystallize, but whenever I get hold of it it is fine.

Mr. Schull. I have never been bothered with thin, watery honey like some; perhaps it is on account of location. My mode of treatment is, after extracting, to pour it into open vessels. I use forty-gallon barrels, raised so that I can roll another barrel under the faucet and fill these barrels in one extracting, and cover with muslin to exclude all insects, letting it stand until the next day and then skim off all comb, then let it stand as long as ten days with the same covering; by so doing the honey is thick. Others say they have found in barrels of this kind one-half inch of thin, watery honey on the top. Honey is usually very thick, unless in wet weather; if you undertake to extract honey in this condition it will be more or less watery. Bees ripen honey every night. Go to the hive and you hear a roaring noise, which is caused by their getting up a current of air to ripen the honey. Bees do evaporate honey every night after gathering rapidly during the day. You find the honey that has been gathering during the day thin. Take this same comb on the following morning and it will be thick enough not to drop out; it will convince you that the water part has evaporated. Twelve years ago I drew out honey and run it from the extractor into barrels, and let it lay

over until the following fall, and it was still thin and watery and not good. I boiled it before feeding to the bees.

Mr. Cotton. Do you extract before or after capping?

Mr. Schull. I commence extracting when the combs are full, and begin to cap at the upper bar.

Mr. Muth. Some maintain the idea that it must be kept watery and unripe; honey should not be capped. If you can get more honey before capping it is just as good as any.

Mr. Mason. It is not unsafe to can up honey that we know is ripe. Atmospheric changes have considerable to do in the shrinkage of honey.

Mr. Lane. Every man must be his own judge. Uncapped honey is nice. I have got some of it to-day put up for my own use into jars, sealed down and set near the stove to crystallize, but it could not evaporate any and you can pour out a glass of it, but after you get it out it becomes solid and you can turn it upside down.

Mr. Davis. I have a few tin cans which contain honey; it was extracted before capped, put in the cans with a thin muslin cloth over it and set in a dry, warm place, and they are just as full as when put there.

Mr. Schull. We used to think it was necessary to wax our barrels; you will find it is not necessary. I use the best of white oak barrels and put on about eight iron hoops. It makes no difference how dry they are—you fill them with warm honey and you will find at the end of a week you can pick the hoops off; watch your barrels and tighten the hoops occasionally and in a few weeks they will become tight. At Cincinnati, a few years ago, a friend of mine told me if we had our barrels made of sugar pine we would have no trouble.

Mr. Muth. I have received many oak barrels, and also cypress barrels. One party in Mississippi shipped a lot of honey in oak barrels; I refused to accept his honey; the barrels had leaked and were half empty. Barrels will shrink more or less. A friend had some in the open air under a shed filled with water; he put the water out and put the honey in, and shipped the barrels on the steamboat; they shrank and got almost too loose to handle. You can use oak and pork barrels to good advantage. I have bought a number of oak barrels and they are first class. If you want to improve on them, put a few iron hoops on them.

Mr. Kennedy. I had some experience with a pine barrel. I washed it out and left it in the sun to dry after putting eight iron hoops on it as tight as I could drive them. I put in the honey; in a short time the hoops were loose and had to be driven up again. The rough handling of the barrels would not do for barrels of wood as soft as pine.

Mr. Muth. Barrels should be good and strong, as honey is heavy.

"Is buckeye timber good for sections?"

DISCUSSION.

Mr. Muth. The pretties I have are made of basswood. Buckeye is also good, and sometimes cottonwood, if it is white and smooth.

Mr. Cotton. Buckeye has a strong scent; it might destroy the flavor of the honey.

Mr. Muth. The best bowls for cooking purposes are made of buckeye. I think it would loose its strong scent.

"What causes bees to rob, and what is good to counteract them?"

DISCUSSION.

Mr. Shaw. I am not troubled with robbing; the cause is scarcity of honey. Those colonies that are robbed are weak and sometimes queenless.

Mr. —. I have not had much experience in robbing. For a weak colony, or one that is queenless, I shut them up till night, and if that is not satisfactory, I exchange places; it is a good plan. I generally avoid having honey around.

Mr. Muth. Robbing is commenced by honey being exposed when it is scarce. A neighbor's bees will come and go for the honey, while in a good season this is not the case. To prevent robbing, we must make the entrance to the hive small before the robbers come on. I have practiced placing a tent over the hive while working with them, to good advantage, and by so doing have, in some measure, prevented robbing in that way. In the weak hives we may have more robbers than others. If the entrance is not narrow, we can not keep them out. I have tried various remedies to prevent robbing. I have placed lumps of camphor at the entrance; the bees of the hive would go in, but the robbers would not.

Mr. Lemming. My way of stopping bees from robbing is to get up early in the morning and close all the hives. I get a broad shingle and sit by them, and in three hours' work you will put a stop to them.

Mr. —. I have succeeded in preventing robbing by placing a tent over the hive, as Mr. Muth has suggested.

Mr. Shaw. An acre of Simpson honey plant is the best thing to keep them from robbing.

Dr. O'Rear. Bro. Kennedy has the best thing to prevent robbing—that is syrup in the yard, so the bees can go to it.

Mr. Kennedy. I had to do something. I had heard that feeding would stop robbing. I put out, I suppose, a gallon of syrup, and they took it up in such a hurry that I concluded it was not a success.

Mr. Daugherty. It is one of the worst things we can do to feed out of doors. I don't leave a scrap of comb out of doors; I always feed inside.

WIRE-FRAME FOUNDATIONS.

Mr. Schall. This question of frames is an important question as to the best mode of wiring foundation. Wire is absolutely necessary. At the same time, while wire seems to be necessary, the less the better, if we can succeed. This foundation, which I hold in my hand, has three wires; these are placed lengthwise, to prevent the foundation slipping on the wire. If the comb is put on a straight wire, the weight of the honey will cause it to slip and destroy the foundation and brood comb. This frame, which I hold, has blocks in the corner, as you see, but if they have wire, perhaps it is not necessary; still there is no objection to it.

Mr. Lane. The less wood we have in the foundation the better, to accomplish the desired object.

Mr. Schull. There is no danger of the frame sagging, and I have had no trouble in it slipping on those wires.

Mr. Daugherty. We have many frames in our yards that the top bar is a little more than $\frac{1}{4}$ inch, and don't seem to sag.

Dr. O'Rear. The frames of all in my yard are wired, not only the Langstreth, but American. I have heard it said that the larva over the wire would be dead; but this is not the case. I see nothing in the way. I prefer them, as I can handle them better with wire than without it.

Mr. Daugherty. When we first commenced using wire the brood died after passing over the cell. Wherever the wire was exposed to the cell three or four larva dried up. Bees have now covered the wires so they live. We have used copper, brass and iron wire, but there is nothing so effective as tinned wire.

Dr. O'Rear. I do not know that we put our wires in differently from most persons; they are put in very tightly.

On motion of Mr. Cotton, a resolution was adopted in regard to holding the next National Convention of Bee Keepers at Indianapolis in 1885.

The following delegates were appointed to attend the National Bee Keeper's Convention: Mr. Daugherty, Mr. Mason, Mr. Muth and Mrs. Robbins.

Association adjourned until 1:30 P. M.

AFTERNOON SESSION.

Convention met at 1:30, President Robbins in the chair.

The "Prevention of Swarming" was taken up for discussion.

Mr. Lemming. I preached at some length on this subject last year and met with some opposition. I have practiced the art of handling bees to prevent them swarming and I have succeeded well. There are parties who claim that bees can not be prevented from swarming, but I am satisfied they can be if taken at the proper time. My plan is to take a colony of bees as early as there are symptoms of swarming, raise a couple of frames from the center of the brood cluster, hang into the upper story; place foundation in the place for them. Every ten days renew the process and give them room. As soon as it will do go to extracting. In lifting out combs from below, to cool the heat down I get combs sealed over. If the queen should commence in the upper story I take her out and put her in the lower story and put a frame of hatching brood in the upper story. You must have good, strong colonies in the spring to start with. I divide my bees so as to winter well. I put in the lower story in the center of the frame on each side of the brood and the balance all well sealed with honey selected from white clover.

INDIANA STATE CANE GROWERS' ASSOCIATION.

The Second Annual Meeting of the Indiana Cane Growers' Association was held in the rooms of the State Board of Agriculture, in the city of Indianapolis, December 26, 27, and 28, 1883, Dr. Allen Furnas, President, presiding. A large number of members from this State were present, and the convention was favored with the presence of a number of visiting friends, who were interested in the production and manufacture of cane, from other States. Much interest was manifested, and from the beginning there seemed to be promise of hearty good will and earnest effort of all concerned to make the meeting a profitable one. Besides the large number in attendance from Indiana, the presence of the following gentlemen from abroad gave encouragement to all concerned, and added materially to the interest of the proceedings: Thomas McQuistin, Ohio; F. M. Roll, Ohio; P. A. Upp, Ohio; M. Day, Ohio; C. M. Schwarz, Edwardsville, Ill.; Col. N. J. Colman, St. Louis; and J. A. Field, St. Louis; and Prof. H. W. Wiley, Government Chemist, U. S. Department of Agriculture, Washington, D. C.; and Dr. Wilhelm, Kansas.

The Library room of the State Board, which adjoined the Convention room, was fitted up for the display of the samples of sugar and sirup which were brought on by the members of the Association. The display was large and very creditable, and no one, on testing and tasting the products of the sorghum industry there displayed, could hesitate a moment from having the conviction of a full belief in the great future of an industry which thus, in the past, has made such rapid strides towards improvement and perfection.

ADDRESS OF THE PRESIDENT, A. FURNAS, M. D.

Brother Co-laborers of the Indiana Cane Growers' Association:

In assembling as we do to-day in this our first annual convention since our organization, it is natural for us to feel our inexperience in an organized life so brief; yet with becoming modesty we propose to represent the cane growing interest of the State of Indiana so far as we may be able in our united council to do so.

We have already proceeded far enough with our investigations, to learn that the task before us is of no small significance, or easy attainment. On the success-

of our labor depends an important factor in not only one of the luxuries of life, but also a positive necessity. In round numbers the sugars and sirups consumed in the United States is estimated to cost annually \$100,000,000, and three-fourths of this amount being purchased from abroad leaves a large margin for us to fill before we have satisfied the home demand. The field therefore of our labor is already as large as this broad land of ours, and our success intimately linked with an important industry of the people.

Perhaps there is no one industry of the husbandman that promises better reward and yet is so little understood.

There is scarcely a single division of our work but has its opposites in methods of attainment. This should not be, and will not, when the light of intelligent research shall direct the labors of the cane grower. This disagreement argues much for our ignorance, and as strongly for more enlightenment in the different departments of management, from planting the seed to the barreling of the sirup, or the swinging of the sugar. We should be able to direct our efforts with the best means and processes in every department for complete success. This can not be while we are groping in the dark, and our labor little better than that of the charlatan. Let us for a moment look at this feature among our cane growers. Our people are beginning to look to the thorough work of their mills and are demanding the greatest possible amount of juice from the cane, and yet a sirup maker of many years of experience told the writer of this, that he did not wish to grind too closely, as by that means he not only obtained the sweetest of the juice, but he also avoided disengaging some very objectionable elements, very hard to get rid of in the course of evaporation.

Most of us would prefer to defecate and clarify the juice as rapidly as possible, and yet, I met a sirup maker in a Western State that watched carefully the collection of the thick scum, and just as most men would remove it, he thoroughly incorporated it with the juice again; and this practice he continued from year to year and does yet for all I know.

While attending the Mississippi Valley Cane Growers' meeting at St. Louis last winter, we asked the question whether rapid stirring sirup in the cooler did not prevent crystallization, and was answered by a member that he always stirred thoroughly, cooling as rapidly as possible to induce it to crystallize. Some use lime cream as a defecator, others denounce it; a few recommend bisulphite of lime, while a respectable number say no doctor stuff in my molasses if you please. One says scrupulously avoid all dirt, another pays five dollars for the privilege of defecating with clay. With such a jargon of teaching, is it to be wondered that no two specimens of cane sirup are alike? While this picture is not very complimentary to the intelligence of our cane growers, yet it has been literally true; and to some extent is at this time. Yet it is to be hoped that a rational practice founded on correct theory is being rapidly introduced and will be further developed as we progress with our investigations, until we shall direct our efforts in the prosecution of manufacturing with mathematical accuracy, and the result be uniform success with a uniform article that can be sold by sample as other goods.

With all this array of contradictory evidence and unsatisfactory results, is it a matter of surprise that the very term "sorghum" should be a by-word and reproach,

the bare mention of which is a stench in the nostrils of civilization and refinement?

I am willing, however, to flatter myself that the tide of intelligent investigation is indicative of better results. Improvement is the watchword, as I interpret it in the faces of you who have come here with your specimens, ready to impart what you have proved to be true, and anxious to learn from others what they have mastered. By this means the sum of your accumulated experience is to be the aid in your future labors as manufacturers, and it is confidently believed will equip you for still further advances in your labors next year. To this work, as cane growers, you will industriously address yourselves in this convention. It is not the purpose of your chairman to dictate the work of this convention; the programme is before you which lays out much of your work, but you will permit me to call your attention to a few matters of vital importance to all of us; and first the question of fuel should claim your careful investigation. If, as is claimed, we can run our fire trains and make steam with bagasse as effectually as with wood or coal, we certainly should learn to do so, as the item of fuel is no trivial consideration. X. K. Stout, of Troy, Kansas, told the writer of this that if he had wood he would not use it, as the bagasse of one day was quite sufficient to run the train the next, and often he had fired in the afternoon with cane ground the morning of the same day. And now we are told that the bagasse, fresh from the mill, is dumped at once at the furnace, at the Champaign Sugar Works, and immediately used as fuel, thus effecting a great saving in the generating of steam.

The stripping and delivering of cane to the mill is an item involving much heavy labor, and any plan that will lessen the expense or facilitate the work, as well as make the task lighter, will be an achievement much to be desired. At my own place we found an ordinary dumping brick bed to save much hard work, as well as a great saving of time in unloading cane.

To get rid of the bagasse, where it is not burned as fuel, is a job that we disposed of with less trouble or expense this year than heretofore, by simply looping a three-quarter-inch rope around a pile of it as it falls from the mill. A small boy can assist a little in shaping the pile, tramping it down until it is sufficiently large for a span of horses to draw readily, and then it is hauled off and left where desired by simply unlooping the rope and drawing it out from under it. Thus, a small thirteen-year-old boy attended to this job and had not work to occupy him half the time. Of course, two ropes are necessary: one to catch the bagasse while the other is removing a load. This is much cheaper than a dumping cart, though loaded directly by an endless apron carrier.

The situation of a sirup factory may contribute much to lessen the labor of manufacturing. For this purpose a hillside or bluff is desirable, so the juice can readily flow from the mill through the proper filters to the tank, and from the tank to the defecator, and from this to the evaporator, and from this to the cooler, and from this into the proper vessel which is to contain it. All this may be done without lifting by machinery or manual labor once, and quite as efficiently as if performed with the greatest expenditure of physical strength. While referring to factories, I wish to speak for a large well-lighted and airy room for the evaporating house. This can be arranged so as to be a comfortable and healthy place to

work, even in the warmest weather. All the openings should be completely screened, to enable the manufacturer to exclude bees and other troublesome insects if disposed to be in the way.

These remarks are made in reference to sirup factories, and not intended for the sugar maker. Your attention is called in our programme of topics for discussion, to the different kinds of mills and methods of evaporation, to which I invite closest scrutiny, for on these hang "all the law and the profits."

A question of vital importance is that of qualified, efficient help. Here is an ample field for the wide-awake enterprising young man who wishes to enter this department of labor. Many country manufacturers are afraid to extend their business for want of trusty, efficient help, and the time has now arrived when the man that can take charge of the refinery and successfully run every department of a sirup factory, (to say nothing of the intricate manipulations of sugar making) will command wages with the engineer and other positions of trust and honor. Last fall I received an urgent inquiry for this kind of help from Arkansas. The news had reached there that the frost had ruined all the cane in Indiana, and the natural inference was that a great number of experienced hands were turned out of employment, and to all such as these constant remunerative employment was guaranteed until Christmas. "Common labor is plenty and cheap here," said the writer. "What we want is intelligent assistance in the management of our sugar works."

There is no room for idlers in our camp. While something has been attained, and the spirit of inquiry is sufficiently aroused, yet more remains to be accomplished, and to the successful the reward will amply crown the effort. Our agricultural colleges have already contributed largely in the advanced work under consideration, and if they can only train the young men who may be receiving instruction in them, not only in the science involved, but also the manual application of it in a practical way, we will still reap further rewards in the accuracies and mathematical certainties which are still awaiting development in this measurably new field of labor.

The meeting was a pronounced success in every way. A number of appropriate papers were read, and lengthy discussions followed, which, we regret, the limited space of this volume forbids inserting. However, the proceedings are published in pamphlet form, and may be had by addressing the President, Dr. A. Furnas, Danville, Ind.

TILE MAKERS.

The Indiana Tile Makers' Association is in the ninth year of its existence. It originated from the want of information concerning this very important subject, so necessary to the development of the resources of the State. It is a branch of the Board of Agriculture, fostered and encouraged until the rooms of the Board are too small for its proportions, and at the last meeting of the Association they were compelled to seek one of the largest halls in the city to accommodate the large and interested gathering of members. They have also assumed such importance that the Association sustains a monthly journal published at Indianapolis, by J. J. W. Billingsley, devoted specially to the drainage and tile interest, and for this reason we have omitted the publication of the proceedings in these reports during the last two years. However, the list of officers may be found in the directory of State Associations in the front part of the Indiana Reports and the State Fair Premium Lists.

To show the wonderful extent of this branch of business in Indiana we compile a few statistics from reports of tile makers sent to the office of the *Drainage Journal*. There are now 661 tile manufactories established in this State. Capital invested, \$1,731,159. Number of men employed, 3,340. Number of tile manufactured, 75,000,000 during 1883. There were 14,500 miles of tile laid down during the year, and many miles of open ditches have been made, all involving an expenditure of millions of dollars. The increased value of land would be approximately, \$2,343,000. The annual increase in value of agricultural products as a result from drainage is estimated at \$1,000,000. The Bureau of Statistics place the number of rods of drain tile laid down in Indiana last year, (1883), at 1,663,517. The total number of rods laid down, 11,487,814, equal to 35,900 miles.

In this connection we will vary from the usual rule to confine the matter for the Agricultural Report to Indiana productions, and include as follows, an essay of peculiar interest, and more than ordinary value:

DRAINAGE FOR HEALTH.

BY PROF. R. C. KEDZIE, OF MICHIGAN.

[Read before the Tile and Drainage Association.]

There is pith and point in the common expression *our mother earth*. Sprung from the dust, we live upon her bosom and draw our vital supplies from her ample stores, and when "life's fitful fever" has burned itself out, our ashes drift back to their original source. We may as well humbly accept this fact that, as regards our physical existence, we are of the earth, earthy, and that we shall never free ourselves from these fetters of clay until this mortal shall put on immortality.

To turn our thoughts for a time to the physical conditions of life is no evidence of low desire and groveling instincts, but is rather an exhibition of that wise forethought which has received the highest sanction. "A prudent man foreseeeth the evil and hideth himself, but the simple pass on and are punished." Life is the gift of God, but continuance of life is conditioned upon and limited by its physical surroundings. If to live is noble, then the physical conditions of living can not be ignoble.

It is not merely in times of flood and shipwreck that our confidence in the solid land is brought out. It is said that no form of danger begets such overwhelming and universal terror in man and beast as the earthquake, where the very *ground* of our security becomes a source of peril. We tremble before the thunderbolt and the tornado, we turn pale under the withering wings of the pestilence, but the soul dissolves in terror with the heaving throb of the earthquake.

But I do not propose to discuss these unusual conditions and uncommon dangers, but turn your attention to some of the conditions of common life. *Common life*, a tame and uneventful theme. The uncommon life of the great, of heroes and statesmen, generals and admirals, who scourge the earth and vex the sea; the rich, the powerful and mighty ones of earth, who live the uncommon life—this has a fascination for us all, in comparison with which common life seems mean and dull, just as our eyes light up as we gaze upon the gorgeous hues of the rainbow, forgetting the common light of day. But as it takes all the colors of the rainbow to make the common light of day, so all heroism and excellence go to make up common life. In its entirety and intrinsic value, common life is more valuable than all chivalry, romance, oratory and poetry, just as the ocean is grander and weightier than all the clouds which spring from its bosom only to float in lofty disdain through the fields of air. All honor to common life because it is common, and a reverent study of the conditions of its betterment.

THE VALUE OF HEALTH.

Next to life the most precious possession is health, the harmonious, co-ordination of all internal and external physical forces to secure the well-being of the individual. The conditions of health have been laid down as pure air, pure water and pure food. These three "P's" are three prime factors of health, but are not all the conditions. Atmospheric temperature and moisture, which are controlling forces in climate, have also intimate relations to health. The fact that the human body amid wildly conflicting changes of temperature must still maintain a temperature of 98° F., that to fall much below or rise much above that temperature causes disease, and, if continued for many hours, causes death, and the further fact that many processes of secretion and excretion, of assimilation and consumption, are delicately counter-balanced against each other to obviate the effect of marked changes of temperature, are indicators of the controlling influence of temperature over health and even life. One writer has tersely said: "Heat is life, cold is death."

THE SOIL AND HEALTH.

Since the soil must affect the composition of the air overlying it, has a profound influence upon the water contained within it, and has a marked control over the local temperature, it becomes evident that the soil itself and the physical condition of the soil must have a marked influence upon the health of its inhabitants. Very obviously, the soil is the physical basis of life. I pass by all questions of composition, texture, color, specific heat and conductive power of soils, and confine my attention to the relation of soil-water to health.

SURFACE DRAINAGE.

The drainage of swamps and marshes, and the removal of all stagnant surface-water have been so beneficial to the health of the community that no one in this age questions the benefit. In a State where one-ninth of the surface is indicated upon the original surveys as swamp, the benefit to the general health must be obvious. Within my own memory, the malarial diseases of this State have been reduced one-half, and the most potent factor of this reduction is drainage of swamps. No law ever placed upon our statute book has been productive of more good and less evil than the law providing for compulsory drainage, where each land-owner was compelled to bear his just part of the burden and no churl could block the draining of a whole neighborhood because he chanced to control the outlet. This law has paid the State ten-fold the cost in reclaiming a large area of once worthless land, and it has paid a hundred-fold in promoting the public health.

UNDERDRAINAGE.

Surface drainage needs no advocate to-day, and I turn my attention to a form of drainage equally necessary, but the need for which is not so obvious. I refer to the underdraining of soils whose surface appears reasonably dry, but whose deeper recesses are full of stagnant water. Such water is never to be mistaken for soil

moisture or water held in the soil by capillary action, but is the free water of soil, which will flow under the action of gravity, and has been named *ground-water* by the Germans.

This ground-water diminishes in a marked degree the agricultural capabilities of the soil, lowering the temperature, preventing soil oxidation, arresting the elaboration of plant food and preventing the free spreading of the roots in the soil; because the roots of most cultivated plants will die in stagnant water. I do not propose, however, to discuss the agricultural value of drainage.

GROUND-WATER AND HEALTH.

The influence of ground-water on health is equal in importance to its influence on crops. No matter how fertile the soil, if the farmer, by reason of sickness, is unable to sow, harvest and gather the golden grain. I call your attention in particular to this influence of ground-water present in the soil in consequence of imperfect drainage, because people are only beginning to realize how profound is the influence of ground-water on the public health. This influence is exerted directly in three ways: *By making the soil and the air above it cold; by making both damp; and by generating malaria;* indirectly the ground-water is the *predisposing cause of a large number of diseases.* Let us look at this subject in the meteorological conditions we find at the State Agricultural College.

ANNUAL RAIN-FALL.

The following table gives the mean monthly rain-fall at the Agricultural College as determined by 21 years observations, from 1863 to 1884:

Jan	Feb.	Mrch.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.72	2.05	2.49	2.54	3.19	4.34	3.94	2.54	2.77	2.46	2.18	1.91

YEAR—32.13.

This is the average rain-fall, some years more than this and some years less. The rain water will be disposed of in three ways: 1. Used up by growing plants and evaporated by the leaves and stems. 2. Flowing away either over the surface or by subterranean channels. 3. Evaporated. When we speak of so many inches of rain-fall we seem to be dealing with small quantities of water, but the gross amount is really large; thus, one inch of rain-fall means 112 tons of water to the acre, and the annual rain-fall on each acre at the College is 3,600 tons.

LOSS OF HEAT.

The mean rain-fall for six months from April to end of September is $19\frac{1}{2}$ inches. Suppose an acre is planted to corn, producing 20 tons, and, assuming Knop's estimate that it will evaporate from its leaves and stems during the period of growth thirty-six times this weight, then 720 tons of water, say $6\frac{1}{2}$ inches of rain-fall, will

be used up by the growing crop, leaving 13 inches to be disposed of in the six months by flowage and evaporation. Suppose that by flowing over the surface and by evaporation, which will take place from the surface of any moist soil, six inches of the semi-annual rain-fall is made way with, and that the remaining seven inches would flow away by subterranean channels if such were provided. In their absence, this mass of water can be disposed of only by an increase of the natural evaporation. Evaporation is a powerful cooling process. To evaporate one pound of water will consume an amount of heat sufficient to raise the temperature of $5\frac{1}{2}$ pounds of water from freezing point to boiling heat. By evaporating such a mass of water the temperature of the soil is lowered to a surprising degree, with a corresponding loss of active force for the use of vegetable life. If we attempt to make good this loss of heat by unnecessary evaporation, and to restore the normal temperature of such a soil, it would require all the heat caused by burning sixty-five tons of coal for each acre. No wonder the farmer calls such a soil *cold*. Any means by which we can draw off this water without evaporating it, will be a large addition to the available temperature of the soil during the growing season. Every tile that discharges five tons of water a day for six months, saves an amount of heat equivalent to seventy-five tons of coal.

TILE HEATING.

Let me vary the illustration, because the loss of heat by evaporation and the saving by drainage is so important that it can not be placed in too clear a light. Suppose that a tile drain discharges constantly for six months a stream of water whose cross-section is one square inch, and velocity $2\frac{1}{2}$ miles an hour, how much coal will be required to evaporate the mass of water thus discharged? More than 1,000 tons of coal! Suppose the drain discharges only six weeks of this period and is dry the rest of the time, this six weeks' drainage will still save the heat equivalent to 250 tons of coal. It is a physical necessity that a water-soaked soil should be a cold soil during all our so-called hot season. The evils springing from this cause are more manifest in spring and early summer, but it is at this period that tile drains are most active. It is at this season, also, that animal and vegetable life alike demand warmth as they shake off the shackles of enforced hibernation.

CHILLED AIR.

But the evaporation of so much water producing cold renders the air over such a soil *damp and chilly*. This result is a physical necessity. This damp and chilly atmosphere has a more serious influence than the simple feeling of discomfort. It has a most depressing influence on the human system, lowering its tone, enfeebling the vital powers, and acting as the predisposing cause of a long list of diseases, some of them the most destructive and incurable known to medicine. The depressing influence of the dampness and chilliness of water-soaked soil is not to be compared to the effect of an occasional wetting as when we are caught in a shower. The chilly dampness of an undrained soil is persistent and unrelenting, dragging us down with its cold fingers at all hours, of "noon of day and noon of night," as

if we labored and rested, waked and slept in a perpetual drizzle of a cold rain. It may seem a small force at first, but its persistent, untiring and relentless pull tells upon the strongest at last, like the invisible fingers of gravity, which finally drags down all to a common level, whether towering oak or cloud-piercing mountain. This depressing influence is not developed suddenly and distinctly; an hour, a day, a month may show no marked deterioration, else men would flee from such places as from a plague spot; but silently and secretly the sapping and mining go on till the explosion comes in sickness, suffering, and the sleep that is eternal.

Once more, a water-soaked soil is the fruitful source of malaria, giving rise to that devil, ague, and "his name is legion."

SOIL BREATH.

There are certain other conditions secured by drainage of the soil which are essential to the health of the inhabitants, and one of these is aeration of the soil, or the passage of air through the pores of the soil. The air is entirely excluded from water-soaked soil; the entrance of air is prevented and all interchange between the air and soil—all *soil breath*—is prevented. Have you ever thought how *everything breathes—animate and inanimate alike*? You inspire and expire air continuously, and thus keep yourself in good condition, and so does your coat and jacket! The air penetrates every fibre of your wardrobe, passing in and out, and carrying out something it did not carry in. If your clothing was impermeable to air you could not tolerate it for an hour. The invisible waves of air wash and purify you every hour.

Let me illustrate this: I cover the bowl of this tobacco pipe with the skirt of my coat, and bringing the stem of the pipe before the candle-flame, you see I can easily blow air through several thicknesses of cloth and sway the flame by the current of air. I do the same thing with buckskin, a felt hat, leather and everything we wear except India rubber.

If you suppose your clothes do not breathe, place them in an air-tight box and strangle them for a few months, when the musty smell will convince you that your clothes must breathe to remain sweet and wholesome. Even the solid bodies, such as wood and stone, are still washed and infiltrated with air. Here is a stick of red oak a foot long, and you see I can readily blow air through it. Here is a roll of mortar, such as masons use in plastering walls, and you see I can, with the slightest effort, blow air through four inches of dry plaster.

Not only can the air pass through these bodies, but it does pass under natural conditions, and *plastered walls breathe*. In plastered rooms where the walls have been left undisturbed for some time, you see the position of every beam and joist, and even the lath, by the lighter color of the wall. The part of the wall occupied by the plaster only is more permeable by air, which, in passing through leaves the dust behind, forming a brown streak. Breathing the dusty air for months, the wall has its nostrils filled with dust, and very evidently the old house has a dirty nose!

The soil also breathes. Under proper and sanitary conditions the air passes in and out of the soil with every motion of wind. You will be surprised to see how readily air may be made to pass through soil. Here is a jar fourteen inches high filled

with compact, dry soil, the top closed with a doubly-perforated cork; through one hole a glass tube passes to the bottom of the jar, but terminates above in a horizontal jet; through the other hole a tube passes to the space above the soil. On blowing into this tube gently you see that the air passes down through fourteen inches of soil, because it escapes freely at the horizontal jet of the other tube, as is shown by blowing the candle flame before it. Here is another tube five feet long and mounted in the same way, and you see I can force air through the dry sand and sway the candle flame by the escaping air.

WATER STOPS SOIL BREATH.

But all this is changed in the presence of water in these materials. If the walls of the house are wet, the passage of air is prevented. I wet this half-inch of plaster and you see I can not force the air through it. In the same way, if the soil is drenched with water, the passage of air is prevented. I have here a bottle filled with soil saturated with water, and you see how the passage of air is prevented—that the air will pass through fourteen inches of dry soil easier than through four inches of wet soil. Indeed, the air will not pass at all through this thin stratum of wet soil, but will readily pass through this thick stratum of dry soil. You thus see that *a drenched soil is a drowned soil*; that all the conservative influences secured by the interaction of soil and air are cut short by the presence of ground water. You see that such a soil must be unhealthy aside from the cold and damp quality of the air which overlies it, though these are themselves prime factors of disease.

“A wet soil is proverbially unhealthy, and marshy and water-logged lands have long been recognized the world over as a cause of paroxysmal fevers.” Buck’s Hygiene, Vol. 1, p. 412.

The Sanitary Report for England, 1852, gives the following conclusions in respect to the influence of soil dampness:

1. Excess of moisture even on lands not evidently wet, is a cause of fogs and damps.
2. Dampness serves as a medium of conveyance for any decomposing matter that may be evolved, and adds to the injurious effect of such matter in the air; in other words, the excess of moisture may be said to increase or aggravate excess of impurities in the atmosphere.
3. The evaporation of the surplus moisture lowers temperature, produces chills, and creates or aggravates the sudden and injurious changes of temperature, by which health is injured.

Dr. De Chaumont, in his lectures on State Medicine (1875), says: “It is generally admitted that a persistently low ground-water, say fifteen feet or more down is healthy; that a persistently high ground-water, less than five feet from the surface, is unhealthy; and that a fluctuating level, especially if the changes are sudden and violent, is very unhealthy.”

Says Dr. James Clark: “Humid, confined situations, subject to great alteration of temperature between day and night, are the most dangerous. Of all the physical qualities of the air, humidity is the most injurious to human life.” Buck 1, p. 444.

An investigation into the causes of an outbreak of diphtheria in New York in 1872, brought out the fact that many of the old water-courses and natural springs had been filled in years before, without making any provision for draining the soil, and the disease seemed to be especially prevalent along the line of these old water-courses.

In an outbreak of cholera in Dublin in 18n6, Dr. Mapother says two-thirds of the deaths took place on or close to the old water-courses that had been converted into sewers or filled up with mud.

Catarrh and rheumatism are natural products of the chills and damps of an undrained soil. Diarrhœa, dysentery and malarial fevers are very common and very severe in type in districts where ground-water abounds and the water-line approaches the surface.

GROUND-WATER AND CONSUMPTION.

Finally, extensive researches in England, Germany and America have established the fact that undrained soils greatly promote consumption. This fell disease, the direct cause of one-seventh of the deaths in the world, finds its favorite haunt in the water-logged soil. This is no wild guess, thrown out to be the sensation of the hour, but it is sustained by a vast array of facts, and is a result independently reached by separate investigators in widely separated countries. However precarious may be the field crops on a water-soaked soil, the abundant house crop of consumptives may safely be counted upon.

The entailments of living on water-soaked and undrained soil are catarrh, ague and rheumatism in the spring, diarrhœa, dysentery and fever in the hot months pleurisy, pneumonia and diphtheria in the cold months, and consumption all the year round.

THE MARCH OF EVIL.

To the thoughtful mind one of the saddest sights is the endless succession of evil arising from preventable causes. In his recent address as Lord Rector of the Glasgow University, John Bright drew a striking picture of the endless procession, marching on in successive generations, of ignorant, impoverished and imbruted men with their sad-eyed and hunger-pinched wives and children, caused and continued by the enormous taxes imposed to maintain the conditions and appliances of successful war in times of profound peace. In a less dramatic but no less true light we may draw the lineaments of physical evil, casting its long shadow down the corridors of time. We have histories of races and dynasties, their rise, progress and decline, the causes which brought them into prominence, and the forces which brought them to their downfall. Why should not a soil have likewise a history of its own and take on a personality as truly as a race? Let us scan the features of such a farm and follow the history springing from its inherent qualities. The surface is somewhat level or gently undulating, the soil a tenacious clay, strong in the elements of enduring fertility if the physical conditions are properly adjusted. The natural drainage is very slight except that much of the surface water can run off by overflow, but the tenacious quality of the soil prevents all deep drainage; the deeper soil is water-soaked in spring and early summer, and at other times

when heavy rains fall; gate and fence posts are heaved by the frost, winter wheat and clover are half uprooted by the same force. Work is late in the spring because the soil is cold and wet, crops are slow to start and slower to ripen. The farmer "has a hard row to hoe." A hopeful and cheerful spirit is conspicuously wanting because he has generally poor success with his crops, "bad luck," and because he has the continuous depression of poor health. The furrows seam his cheeks early, his shoulders stoop when he should stand erect in manhood's prime.

Indoors the wife soon fades, the bloom and laugh of happy girlhood give place to the chronic invalidism of motherhood. Children are born only to die, or linger on in joyless ill health. The family is finally blotted out, unless a surviving son may hand down this heirloom of sorrow to another generation, when the farm passes into other hands to repeat the same story. And thus we see in hopeless succession, the generations of joyless owners pass before our eyes. The doctor, the undertaker and the sheriff enter in succession to shift the stage scenery, but the same sad drama goes on with little variation.

If nature had only planted a gravel-bed under his whole farm, outcropping on some streamside, so the cold waters might laugh and sing on their way to their home in the sea, thus warming up his soil to early fruitfulness and warming up his soul to the real joy that springs from hope and health, bringing light and laughter to the housewife by letting the tinkling spring-drop replace the scalding tear-drop, how changed the history of such a farm! Competence, and even abundance, come from the grateful returns of his well-conditioned soil, as the earth teems with her harvests. Health comes to crown the mercies of the year. His children rise up to call him blessed instead of beckoning him with their shadowy fingers to the spirit land.

Is this all a figment of the imagination? Can you not tell of farms where many of these features can be traced in the water-soaked soil, but finally reclaimed and regenerated by thorough drainage?

SANITARY DRAINAGE.

Drainage on the large scale for sanitary purposes is almost unknown. All our knowledge on this subject is derived from drainage undertaken for agricultural purposes. But whatever the purpose for which drainage is undertaken, the benefit to the public health is always pronounced and unmistakable. In the drainage of large tracts of swamp land in Bureau county, Ill., Dr. Breed reports that 36,600 acres of swamp lands have been greatly improved or quite redeemed; 20,000 acres hitherto of little or no value, have been converted into excellent pasture or meadow lands, while no inconsiderable portion has been rendered good tillage land. Thus, by these means, thousands of acres, once nearly covered with water, swampy, grown up and covered with reeds, brakes and coarse grass, interspersed with knolls covered with small trees and tanglewood, the haunts of water-fowls, reptiles and muskrats, sending forth over the adjacent country a noisome and pestilential miasm, have become converted into dry land, rich pastures and meadows, where vast herds of cattle may be seen cropping the rich, luxuriant grasses. As a natural consequence, the health of the inhabitants has been improved at the same time. Buck 1, p. 422.

Governor Porter, of Indiana, in his address of welcome to the American Public Health Association, at Indianapolis, October, 1882, alluded to the benefits of sanitary drainage in the following words: "It gives me pleasure, also, to say that the practice of underdraining the soil has, in this State, been found so greatly to increase its productiveness that, in proportion to the area of the State, it is said that we have more underdrained soil than any of the States. Underdrainage has everywhere been followed by a great lessening of sickness, and intermittent fever, once so common, has become so rare that it is a good deal less prevalent than in some of the oldest of the States. Our laws relating to drainage have been recently much improved, and a disposition to relieve the soil in every portion of the State of all excess of moisture tending to lessen its productiveness and to bring on sickness, is everywhere evident."

DRAINAGE OF DWELLINGS.

The sanitary drainage of dwellings has received more attention than that of fields, but is still too much neglected. The sentimental rather than the sanitary idea of home has captured our thought. The paradisaic poetry and fiction, which attempt to describe the ideal beauties of home, which sing of "fuming rills, of gushing fountains with many a rill, of damp moss glistening with orient pearls, of blissful bowers, of thickset covert, of inwoven shade, of umbrageous grottoes and caves of cool recess," will do well enough for the unreal world of the imagination, but will scarcely answer for the hard world of actual life. Mr. Adam, with a crick in his back or his left knee doubled up with rheumatism, Mrs. Eve, with an old shawl over her head and a tear in her eye as she groans over the jumping toothache, and little Abel, as he trots around with a cold in the head and a nose that calls constantly for a handkerchief, are not poetic. They are pathetic rather than poetic. Dampness and shade, gushing springs and dripping moss, delightful smothering with flowers and twining plants, will do well enough to read about before a rousing fire with your feet in warm slippers, but they have their little drawbacks in actual contact. When sentimentalists spin off this delicious alliterative nonsense in behalf of wet and wooing, flowing and flowery, give them the curt sanitary admonition with a double meaning, *dry up!*

That healthy houses may be built upon very unpromising sites by first securing good drainage, is a matter of daily experience. A tract of land in the suburbs of Detroit was so wet that it was supposed to be nearly on a level with the Detroit river, though it was seventy feet above the river level. During wet seasons it served as a preserve for frogs and mosquitoes, and during the dry season the baked and cracked soil seemed to be gaping and yawning with ague chills. The soil was tenacious clay with occasional pockets of sand. It seemed an unpromising spot for human habitations. Sewers were sunk ten feet below the surface with laterals for cellars. The sewers served both as surface drains and subsoil drains. Twenty-eight houses have been put up since 1872, and there have been no cases of ague, dysentery or fever; indeed, the locality has been rendered exceptionally healthy. State Board of Health, 1877, p. 56.

Examples of this kind might be quoted by the hour. But when houses are built upon retentive water-soaked soils and no means employed to take off the

ground-water or ward off its effects, the harvest of woe is sure, though it may be slow to ripen.

Two brothers in Vermont, of strong and vigorous stock, and giving equal promise of a long and active life, married wives corresponding in promise of future activity. They both had chosen the healthiest of all callings—farming. One of the brothers built his house in an open and sunny spot, where the soil and subsoil were dry; shade trees and embowering plants had a hard time of it, but the cellar was dry enough for a powder magazine; the house in all its parts was free from every trace of dampness and mold, there was a crisp and elastic feel in the air of the dwelling. The farmer and all his family had that vigorous elasticity that reminds one of the spring and strength of steel. Health and sprightly vigor is the rule, and sickness the rare exception. The farmer and his wife, though past three score, have yet the look and vigor of middle life.

The other brother built his house in a beautiful shady nook, where the trees seemed to stretch their protecting arms in benediction over the modest home. Springs fed by the neighboring hills burst forth near his house and others by his barns; his yard was always green even in the driest time, for the life blood of the hills seemed to burst out all about him in springs and tiny rivulets. But the ground was always wet, the cellar never dry, the walls of the room often had a clammy feel, the clothes mildewed in the closets and the bread molded in the pantry. For a time their native vigor enabled them to bear up against these depressing influences; children were born of apparent vigor and promise, but these one by one sank into the arms of the dreamless twin brother of sleep under the ouch of diphtheria, croup and pneumonia. The mother went into a decline and died of consumption before her fiftieth birthday, and the father, tortured and crippled by rheumatism, childless and solitary in that beautiful home which elicits the praises of every passer-by, waits and hopes for the dawning of that day which shall give him back wife and children, an unbroken family and an eternal home.

“Look on this picture, then on that.”

OBITUARY.

HON. DAVID P. HOLLOWAY, an ex-President of the Indiana Board of Agriculture, died of paralysis, at Washington, D. C., Sunday, September 9, 1883, at 5:30 A. M., aged 78 years.

"David P. Holloway was born at Waynesville, Warren county, Ohio, December 6, 1809. In 1813 his father, David Holloway, removed with his family to Cincinnati, where he engaged in the mercantile business. In 1823 they removed to Wayne county, Ind., and settled on a farm four miles east of Richmond. Two or three years later they removed to Richmond, where his father resumed the mercantile business. At the age of fifteen the subject of this sketch commenced his apprenticeship at the printing business in Richmond, with Edward S. Buxton, publisher of the Public Ledger. He afterward completed his apprenticeship in the office of the Cincinnati Gazette, during the time that paper was edited by Charles Hammond, the ablest editor the Gazette ever had, and he was never happier than when detailing reminiscences of that distinguished editor, whose confidence he enjoyed up to the date of his death. Mr. Holloway had for a fellow-apprentice at that time the late Lewis D. Campbell, of Hamilton, Ohio, and the Comley brothers, who conducted the Dayton Journal for so many years. His connection with the editorial control of the Richmond Palladium commenced in 1833, and he continued as its editor for over thirty years, during which time he occupied many public and private positions of trust and honor. In 1843 he was elected a member of the State Legislature, and the year following State Senator, which office he held for six years. He served as Presidential Elector in the campaigns of 1848 and 1852. In 1849 he was appointed, by President Taylor, Examiner of Land Offices. In 1854 he was elected Representative in Congress, and in 1861 he was appointed Commissioner of Patents, which office he resigned in 1865 because he was not in accord with the administration of Andrew Johnson.

While in Congress he was Chairman of the Committee on Agriculture, and succeeded for the first time in bringing that committee into prominence, and he secured from Congress the first appropriation of any magnitude for the purchase of seeds and the benefit of agriculture. It was out of this fund that sorghum sugar cane seed was purchased and that important branch of industry introduced into this country. From 1852 to 1861 Mr. Holloway, in addition to his duties as editor of the Palladium, edited and published in connection with his now venerable partner, B. W. Davis, Esq., who still survives him, the Indiana Farmer, then the only agricultural paper in the State. They sold the Farmer when Mr. Holloway was appointed Commissioner of Patents and thereby compelled to remove to Washington. Although not a practical farmer, he always took a deep interest in all matters pertaining to agriculture and farming. He was the first President of the Wayne County Agricultural Society, and was largely instrumental in securing the passage of the law creating the State Board of Agriculture, of which Board he was a member from its organization up to 1861, when he was President of the Board, and which position he relinquished because of his enforced absence at Washington.

Since his resignation as Commissioner of Patents he has practiced as a patent attorney at Washington, and has always occupied a prominent position in social and political circles in that city. For the past forty years he has occupied a conspicuous position among the leading advocates of the cause of temperance in the United States, and devoted much time to the advancement of that reform, and, for several years previous to his death, he was the chief officer of several of the leading temperance societies at the Federal Capital, and was for a considerable time President of the Indiana Republican Association at Washington, which position he relinquished because of failing health about one year ago.

He held a birthright in the Friends, or what is more generally known as the Quaker Church, and while in all religious matters he was emancipated from mere sectarian belief, having charity for the opinions of others, he adhered to the faith of his parents, who were conspicuous for their piety and devotion to their church and its peculiar tenets.

Mr. Holloway was married November 13, 1834, to Jane Ann Paulson, who died December 8, 1864, aged fifty-two years. He never married again. Their children were John M., who died in 1874; William R.; Dayton, who died in 1858; Henry C.; Allen T.; Charles P.; Sarah, who died in 1881, and Mary Anna, who died in 1883. He had four sisters and three brothers, only one of whom, Jesse Holloway, survives him.

No man did more to mold public opinion in Eastern Indiana during the period he was in public life than he did, both through the columns of the *Palladium* and on the stump. He was almost the last prominent representative of the old Whig party of Eastern Indiana. Parker, O. H. and C. B.; Smith, Rariden, Newman, Meredith, Kilgore, Elliott, Farquhar and Hackleman, have fallen one by one as the ripe oak falls in the stillness of the forest. "One generation passeth and another cometh." Thus it has been from the beginning, and thus it will be until time shall be no more.

The deep grief which will oppress the hearts of hundreds of people all over the country who read this announcement will constitute a more eloquent eulogium upon the life, character and public services of David P. Holloway than the power of language can express.

Mr. Holloway was no less remarkable for his social qualities than for his integrity and genuine manhood. As a companion he was the delight of his friends, and no man ever had better or truer. They loved him from the beginning and loved him to the last. His hospitality was unbounded, and no guest ever departed without feeling better for the visit. Malice was not in his nature. He was congenially employed only in the exchange of good offices and the doing of kindly deeds. He passed away full of years, full of honors, pure in character, and no man has left a better example to those who are to come after him. His time had fully come—the three score and ten making the ordinary period of human life had passed—he has gone to rest.

His health had been failing since the death of his youngest child and daughter, Mamie, last December, his first complication being fatty degeneration of the heart,

which was followed by kidney troubles, with symptoms of dropsy, and finally paralysis came and relieved his suffering, which he had borne with equanimity and patience.

Through his illness he was attended by a score of devoted friends, relatives and children, and had no wish that was not gratified, and everything that medical skill or science could suggest or loving hands find to do was done to alleviate his pain and suffering, but human skill was of no avail, and he yielded to the conqueror of all.

His remains were buried on Tuesday afternoon at 2 o'clock at Maple Grove Cemetery, near Richmond, by the side of his wife and son, Dayton, and in the midst of a people he loved and who have honored him with their confidence and regard through a long and useful life."

As a tribute of respect to the memory of one of the pioneers in the work of the Board of Agriculture, who framed the law for its creation, assisted to mould it into existence, and encouraged it by his influence, we herewith insert a copy of the last letter received from him at the office of the Board, deeming it so very appropriate in connection with his biography and evidence of the Board's success in fulfilling its mission.—[SECRETARY.

WASHINGTON, D. C., June 18, 1883.

Alex. Heron, Esq., Secretary of Indiana State Board of Agriculture:

SIR—Thanks for your courtesy in sending me a copy of the last annual report of the proceedings of the State Board of Agriculture. I received it this morning and consequently have only had time to look over it hastily, but it is full of interest, and I can not but express to you my high appreciation of the labors of your Board and of your personal and official connection therewith. Though I have been almost continuously absent from the State more than twenty years, I am an Indianian still; it is my home, and I shall never claim any other.

The volume just received indicates the progress of agriculture in our State to a degree of intelligence and success that must command the admiration of all who feel an interest in her prosperity.

I had something to do with the organization of the State Board and the holding of its first exhibitions, and the good that I then believed would result to our State has been fully realized. In the first fair "old Wayne," my home for more than sixty years, was most conspicuous in the number of her citizens who were exhibitors and the amount of premiums they received. I deeply regret, however, to find that this "mother of counties" is not mentioned in this report as participating in the last exhibition. "Old Wayne" has steadily progressed, but how far in advance of her position she would have been had she continued to take an interest in the labors of the State Board, I will not attempt to indicate.

Truly yours,

D. P. HOLLOWAY.

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